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OF
Infant Mortality

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OF THE
Fourth Annual Meeting

Washington, D. C.

November, 14-17, 1913

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BALTIMORE
1914

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The fifth annual Meeting of the American Association for Study and Prevention of Infant Mortality, will be held in Boston, Mass., November 12-14, 1914.

TABLE OF CONTENTS

	PAGE
List of Directors, 1912-1913.....	5
List of Committees, 1912-1913.....	6
List of Directors, 1913-1914.....	9
Report of Meeting.....	15
Report of Executive Secretary.....	19
Report of Treasurer.....	23
Address of the President, L. Emmett Holt, M. D., LL. D.	
Infant Mortality, Ancient and Modern: An Historical Sketch	24
Report on the English-Speaking Conference on Infant Mortality, Henry L. Coit, M. D.....	55
Sessions:	
Nursing and Social Work:	
Report of the Committee, by the Secretary, Mrs. Frances Freese Lichtenstein	59
Standards for Infant Welfare Nurses, Miss Zoe La Forge.	62
Discussion	66
Private Duty Nurses and Their Work in Helping to Prevent Infant Mortality, Miss M. Frances Etchberger.....	69
Discussion	71
Infant Mortality Nursing Problems in Rural Communities, Miss Fannie F. Clement.....	75
Discussion	79
Pediatrics.	
Statement by the Chairman, Henry F. Helmholtz, M. D...	85
Simple Milk Dilution Feeding, Herman Schwarz, M. D...	86
Discussion	89
Teaching of Hygiene and Its Relation to the Prevention of Infant Mortality, I. A. Abt, M. D.....	91
Discussion	95
Heat and Infant Mortality, J. W. Schereschewsky, M. D...	99
Discussion	128
Eugenics:	
Statement by the Chairman, H. E. Jordan, Ph. D.....	133
Results from Experimental Breeding Bearing on the Prob- lem of Infant Conservation (Abstract), Charles B. Davenport, Ph. D.....	134
The Education of Parents in Practical Eugenics, Mrs. John Hays Hammond.....	135

	PAGE
Discussion	137
The Relation of Experimental Syphilis to Eugenics, Henry J. Nichols, M. D.....	139
Discussion	146
Tuberculosis and Heredity, Harry T. Marshall, M. D....	149
Discussion	156
The Education of Parents in Practical Eugenics, Evangeline W. Young, M. D.....	160
Discussion	164
National Puericulture, Antonio Vidal, M. D.....	169
Obstetrics :	
Statement by the Chairman, Mary Sherwood, M. D.....	173
Prenatal Care, Henry Schwarz, M. D.....	174
Discussion	182
The Ideal Obstetric Out-Patient Clinic, Franklin S. Newell, M. D.	191
Discussion	200
Maternity Hospital Care for the Woman of Moderate Means, George W. Kosmak, M. D.....	208
Reports :	
New England Sub-Committee, J. Lincoln Huntington, M. D., Secretary.....	218
New York and New Jersey Sub-Committee, George W. Kosmak, M. D., Chairman.....	237
Sub-Committee for the Southeastern States and the District of Columbia, John L. Norris, M. D., Chairman	246
Continuation Schools (Third Conference) :	
Introduction by the Chairman, Helen C. Putnam, M. D....	251
Report of Committee, by the Secretary, Abby L. Marlatt, M. S.	257
Discussion of Committee Report :	
Miss Emma Suter Jacobs.....	269
Miss Alma Binzel.....	272
Discussion	277
General Session (Sunday) :	
Infant Welfare and the Community, Mary Sherwood, M. D.	283
Address, W. C. Woodward, M. D.....	286
The Claim of the Baby, J. H. Mason Knox, Jr., M. D....	289
Session on Vital and Social Statistics :	
Statement by the Acting Chairman, George M. Kober, M. D.	293
The Use of Vital Statistics for the Conservation of Infant Life, W. C. Woodward, M. D.....	294

TABLE OF CONTENTS

13

	PAGE
Discussion	303
Progress in Vital Statistics and Birth Registration, Cressy L. Wilbur, M. D.....	313
Discussion	315
General Session (Monday) :	
Part I. Reports of Local Activities :	
Department of Health, Arthur L. Murray, M. D.....	320
The Instructive Visiting Nurse Society, Miss Isabel Strong	326
The Woman's Clinic Auxiliary, Mrs. John Hays Ham- mond	328
Providence Hospital, G. Lloyd Magruder, M. D.....	330
The Associated Charities, Miss Bell.....	331
Baby Hospital Camp, Louise Taylor-Jones, M. D....	334
Women's Welfare Department of the National Civic Federation, Mrs. Archibald Hopkins.....	335
The Infant Welfare Station of the Washington Diet Kitchen Association, Miss Mary Gwynn.....	337
Monday Evening Club, Mr. Charles F. Nesbit.....	339
Central Milk Committee—Neighborhood House, W. J. French, M. D.....	339
Part II. Discussion of Ideal Plan :	
The Department of Health, C. E. Ford, M. D.....	341
The Relation of Baby Saving Activities to the Depart- ment of Health and to Each Other, S. Josephine Baker, M. D.....	351
The Ideal Visiting Nursing, Miss M. Adelaide Nutting ...	
The Maternity Hospital, J. Whitridge Williams, M. D.	355
The Hospital, L. Emmett Holt, M. D., LL. D.....	359
The Dispensary (Social Service Department), Dr. J. H. Mason Knox, Jr.....	361
The Foundling Asylum and the Unmarried Mother, Miss Ellen C. Babbitt.....	363
The Church, Rev. Dr. John Van Schaick, Jr.....	365
Affiliated Societies, Reports of.....	367
Membership List	420
Index	439

FOURTH ANNUAL MEETING

of the

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

The fourth annual meeting of the American Association for Study and Prevention of Infant Mortality was held in Washington, D. C., November 14 to 17, 1913, under the presidency of Dr. L. Emmett Holt of New York City. The principal general session took place at the New National Museum, and a popular session arranged for Sunday afternoon was held at the Church of Our Father; all other sessions took place at the Hotel Willard. The schedule was as follows:

GENERAL SESSION

Friday evening, November 14, New National Museum. The principal feature of this session was the presidential address of Dr. L. Emmett Holt on "Infant Mortality, Ancient and Modern." The address was followed by an informal reception.

SECTION MEETINGS

Nursing and Social work. Miss Harriet L. Leete, Cleveland, Chairman.
Pediatrics. Dr. Henry F. Helmholtz, Chicago, Chairman.

Eugenics. Prof. H. E. Jordan, University of Virginia, Chairman.

Obstetrics. Dr. Mary Sherwood, Baltimore, Chairman.

Continuation Schools of Home-Making. Dr. Helen C. Putnam, Providence, Chairman.

Vital and Social Statistics. Miss Julia C. Lathrop, Washington, Chairman; Dr. George M. Kober, Washington, Acting Chairman.

POPULAR SESSIONS

Sunday afternoon at the Church of Our Father, Rev. Dr. John Van Schaick, Jr., Chairman.

Monday afternoon at Hotel Willard. Reports on Local Activities. Dr. Samuel S. Adams, Washington, presiding.

Discussion on Ideal Plan. Rev. Dr. John Van Schaick, Jr., presiding.

MEETINGS OF THE BOARD OF DIRECTORS AND EXECUTIVE COMMITTEE

The Board of Directors held two meetings, the first on Friday morning, November 14, and the second on Saturday afternoon, November 15. The former was preceded by a meeting

of the Executive Committee. Reports presented at these meetings included those of the Executive Secretary, the Treasurer, and of the Chairman of the American Committee for the English Speaking Conference on the Prevention of Infant Mortality. Dr. H. J. Gerstenberger, Chairman of the Committee on Educational Leaflet and Booklet, reported that the leaflet had been copyrighted and published, and that the booklet was practically ready for publication.

The following committees were appointed by the President:

Nominations—

Dr. S. M. Hamill, *Chairman*
Dr. J. H. M. Knox, Jr.
Dr. J. L. Huntington
Miss M. A. Nutting
Dr. Philip Van Ingen

Resolutions—

Dr. J. W. Schereschewsky, *Chairman*
Dr. W. C. Woodward
Miss M. A. Nutting

Transactions—

Dr. John S. Fulton, *Chairman*

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Dr. J. Whitridge Williams, Baltimore, *Chairman*
Mrs. Wm. Lowell Putnam, Boston
Dr. Cressy L. Wilbur, Washington

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Miss Ellen C. Babbitt, New York City
Dr. Philip Van Ingen, New York City

Traveling Exhibit—

Dr. John S. Fulton, Baltimore, *Chairman*
Dr. Mary Sherwood, Baltimore
Dr. Lillian Welsh, Baltimore

BUSINESS MEETINGS OF THE ASSOCIATION

Business meetings of the Association were held Saturday morning, November 15, and Monday afternoon, November 17. A feature of the meeting of Saturday morning was the presentation of brief verbal reports by representatives of the

affiliated societies. The Executive Secretary reported that the number of affiliated societies identified with the Association was eighty-five; that written reports that would be published in the Transactions had been received from forty-three, and that thirty-five had sent delegates to the meeting.

This was followed by the annual election of directors. In accordance with the amendment adopted at the Cleveland meeting authorizing the enlargement of the Board of Directors, the directorate was increased to eighty.

The following directors whose terms had expired were re-elected for a term of five years:

Dr. Wilmer R. Batt, Harrisburg
 Dr. John S. Fulton, Baltimore
 Dr. Hastings H. Hart, New York
 Prof. C. R. Henderson, Chicago
 Miss Zoe La Forge, Detroit
 Mr. Austin McLanahan, Baltimore

Dr. Jos. S. Neff, Philadelphia
 Prof. M. Adelaide Nutting, New York
 Mrs. Wm. Lowell Putnam, Boston
 Dr. Herman Schwarz, New York
 Dr. Lillian Welsh, Baltimore
 Dr. Cressy L. Wilbur, Washington

The following additional directors were elected for the terms of years indicated:

FIVE YEARS

Dr. Wm. C. Woodward, Washington
 Dr. Gavin S. Fulton, Louisville

Dr. M. J. Rosenau, Boston
 Dr. John W. Kerr, Washington

FOUR YEARS

Miss Ellen C. Babbitt, New York

THREE YEARS

Miss M. S. Gardner, Providence, R. I.

TWO YEARS

Dr. H. I. Bowditch, Boston

ONE YEAR

Dr. S. S. Adams, Washington

At their meeting Saturday afternoon, November 15, the Board of Directors elected

Mr. Homer Folks, New York City, President for 1914-1915.

At the same time the Board declared

Dr. J. Whitridge Williams, Baltimore, the President-elect, President for 1913-1914.

The Board then elected the following other officers for 1913-1914:

First Vice-President, Dr. M. J. Rosenau, Boston.

Second Vice-President, Miss Julia C. Lathrop, Washington.

Secretary, Dr. Philip Van Ingen, New York City.

Treasurer, Mr. Austin McLanahan, % Alex. Brown & Sons, Baltimore.

Executive Secretary, Miss Gertrude B. Knipp, Baltimore.

The Board of Directors elected the following Executive Committee:

Dr. J. Whitridge Williams

Dr. Philip Van Ingen

Miss M. S. Gardner

Dr. L. Emmett Holt

Dr. John Howland

Dr. J. L. Huntington

Dr. J. H. Mason Knox, Jr.

Dr. Mary Sherwood

Dr. Fritz B. Talbot

Program Committee:

Additional member, Miss Julia C. Lathrop, Washington, for a term of five years.

The following resolutions were reported favorably by the Committee and were unanimously adopted by the Association:

Whereas, It is now well recognized that the services of nurses have become an essential and indispensable part of nearly all forms of public health work, the demand for them far exceeding the supply, and

Whereas, It is the experience of public health organizations that in many instances nurses so employed are found deficient in preliminary training for public health work, especially in connection with infants and young children.

Therefore, be it resolved, That the American Association for Study and Prevention of Infant Mortality urge training schools for nurses to provide such instruction, both in theory and in practical training as will enable nurses to render efficient service in public health work, and

Be it further resolved, By this Association that sanitary authorities, visiting nurse and social service organizations be urged to place their facilities for study and practical training, so far as is feasible, at the disposal of training schools for student nurses and of graduate schools for graduate nurses desiring to engage in public health work.

Resolved, That the American Association for Study and Prevention of Infant Mortality reaffirm its previous resolution as to the desirability of establishing a Federal Department of Health.

Whereas, The importance of further accurate scientific study of the causes for the increase in infant mortality during hot weather is great,

Therefore, be it resolved, That the American Association for Study and Prevention of Infant Mortality hereby suggests to the United States Public Health Service the desirability of making such studies under the direction of that Service.

Whereas, Under the plans that have been worked out by the exposition management of the Panama-Pacific International Exposition, social economy will be one of the central features of the exposition with special emphasis on exhibits in hygiene;

Be it resolved, That the American Association for Study and Prevention of Infant Mortality strongly urges the government exhibit board to provide a comprehensive exhibit on hygiene, such exhibit to include the problems of infant mortality.

Whereas, The Fourth Annual Meeting of the American Association for Study and Prevention of Infant Mortality, at Washington, D. C., has been attended by signal success;

Whereas, This success has been due in no small measure to the effective aid and organization of the local activities;

Therefore, be it resolved, That the hearty thanks of the Association are due and are, hereby, extended

To the Committee on Local Arrangements, its chairman and its sub-committees to wit:

The Committee on Registration

The Committee on Publicity

The Committee on Entertainment

The Committee on the Sunday Session

To the Local Press and the Press Associations for their good offices

To the Management of the Hotel Willard for courtesies extended.

Whereas, The American Association for Study and Prevention of Infant Mortality feels itself under special obligations to the faithfulness, zeal and ability of its Executive Secretary, Miss Gertrude B. Knipp, for the success which has attended its activities

Be it therefore resolved, That a special vote of thanks be and hereby is rendered to Miss Knipp by the Association.

A resolution recommending the pasteurization of market milk, was laid on the table. The following was adopted:

Resolved, That the entire matter be referred to a committee of five, appointed by the president, to investigate and report at the next meeting with respect to the use of raw, pasteurized, and boiled milk.

Dr. J. Whitridge Williams, the incoming president, was introduced to the Association at the close of the session. Announcement was made by the Secretary that the fifth annual meeting would be held in Boston in the fall of 1914. He also reported that the Washington meeting had been attended by representatives from twenty-four States, the District of Columbia, Canada, Argentine Republic, Italy and Scotland.

REPORT OF THE EXECUTIVE SECRETARY**November 16, 1912—November 15, 1913****MEMBERSHIP**

The Association closes its fourth year with a total paid-up membership of 716.

FINANCES

The income from all sources has amounted to \$6,579.82. The balance on hand at the beginning of the year of \$827.53 made the total amount available for all purposes \$7,407.35. The income has been derived as follows: \$3,987.74 from membership dues; \$1,545 from contributions; \$284.50 from the sale of Transactions. The itemized list is to be found in the Treasurer's Report.

A fund amounting to \$653.85 has accrued from rentals for the traveling exhibit. This rental was charged with the understanding that the money would be devoted to exhibition purposes only, and that it would be reserved to cover the cost of necessary repairs and to replace the exhibit as it becomes worn out.

TRAVELING EXHIBIT

Through its traveling exhibit the Association has been able to reach a much wider public this fourth year of its existence than at any other time. The places at which the exhibit has been shown have included:

At the opening of the New Educational Building, Albany, N. Y.

Tri-State Fair, Augusta, Ga.

Tri-State Fair, Columbus, Ga.

Board of Health, Jacksonville, Florida.

Child Welfare Exhibit, Providence, R. I.

Throughout the State of Wisconsin under the auspices of the Extension Division and Department of Home Economics of the University of Wisconsin.

Baltimore Babies' Milk Fund Association.

Minneapolis Infant Welfare Society

St. Paul Infant Welfare Society

Duluth Infant Welfare Department of the Scottish Rite Masons.

Lancaster, Pa. Department of Health.

Palmerton, Pa.

Chautauqua, Jacksonville, Ill.

The State Fair, Grand Rapids.

Infant Welfare Society, New Orleans.

The diversity of interests represented in the associations under whose auspices the exhibit has been displayed is indicative of the many sidedness of the welfare work with which the crusade against infant mortality is identified.

AFFILIATED SOCIETIES

The number of affiliated societies on the paid-up list is 85, and through them the Association is in touch with organized activities in over 53 cities or towns in 27 states. Many of these are in the larger cities, but there is a decided increase in the societies that are coming in from the smaller communities. Some of the newer activities which appear in our list for the first time are the Infant Welfare societies of Jacksonville, Florida, New Orleans, Settlement Association of Houston, the Infant Aid Association of Manchester, N. H., the Infant Welfare Committee of the Associated Churches and Charities of Syracuse. The scope and character of the work of the societies that are blazing the trail in infant welfare activities are indicated in the reports that have been received within the last few weeks from the affiliated organizations. These reports have been asked for in accordance with the provision of the Constitution regarding the relations of the affiliated societies with the general organization. Fifty of the societies have replied to the request for reports; forty-three have sent reports and thirty-five are sending official delegates to this meeting.

WORK AT THE CENTRAL OFFICE

The work of the Association has been carried on along three main lines: General propaganda, traveling exhibit and through the work of standing or special committees.

The Executive Secretary has taken part, on invitation, in the Maryland State Conference of Charities, the Alabama Sociological Conference, the Annual Meeting of the Georgia State Association of Graduate Nurses, a special meeting of the Women's Civic Club of Cumberland and a number of local meetings.

Activity in southern centers, notably in Georgia, in Florida, in Alabama, Louisiana, in various cities in Texas, and educational campaigns carried on by the North Carolina State Board of Health are among the straws that show where great opportunities exist at present. The work among the pioneer societies continues to be a source of inspiration to other com-

munities; there is also much encouraging activity in the Middle West, and in every direction an enlightened interest in the subject is being aroused.

THE ENGLISH CONFERENCE

At the request of the international organization, arrangements for the participation of American activities in the English Conference on Prevention of Infant Mortality, held in London in August, 1913, were entrusted to our Association. Dr. Coit was chairman of the American committee and Dr. Van Ingen secretary.

THE CHILDREN'S BUREAU

The Association has been in close touch with the Federal Children's Bureau, and there has been a frequent interchange of material, reports, etc., with cordial cooperation along every line.

CORRESPONDENCE

In connection with the educational propaganda and membership campaigns carried on from the office, 18,660 pieces of mail have been sent out, and over 50,000 pieces of printed matter have been distributed. A summary of the clerical work follows:

Total number pieces of mail sent out.....	18,660
Personal letters.....	3,095
Circular letters.....	5,919
Circularization (follow-up).....	5,468
Postals.....	3,117
Receipts (sealed, but without letter).....	444
Packages (mail).....	617

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

Paid Up Membership November 16, 1912, to November 15, 1913

Alabama	2
California	17
Colorado	3
Connecticut	18
District of Columbia	30
Florida	1
Georgia	4
Illinois	52
Indiana	5
Iowa	3
Kansas	1
Kentucky	7
Louisiana	6
Maine	3
Maryland	93
Massachusetts	46
Michigan	32
Minnesota	22
Mississippi	1
Missouri	17
Montana	1
Nebraska	2
New Hampshire	4
New Jersey	21
New York	104
North Carolina	3
Ohio	81
Oregon	4
Pennsylvania	77
Rhode Island	8
South Carolina	2
South Dakota	1
Tennessee	2
Texas	2
Utah	2
Vermont	2
Virginia	8
Washington	3
West Virginia	1
Wisconsin	6
Philippine Islands	1
Hawaii	1
Canada	10
China	1
England	3
New Zealand	2
Scotland	1
Total	716
Life members	15
Sustaining members	17
Contributing members	30
Affiliated societies	85
Active members	569
	716

Respectfully submitted,

GERTRUDE B. KNIPP,

Executive Secretary.

REPORT OF THE TREASURER

23

November 16, 1912, to November 15, 1913

Balance on hand November 16, 1912:—

General	\$629 18	
Exhibition	192 36	
Petty Cash	5 99	\$827 53

Receipts:—

Membership		
Active	\$1,775 74	
Affiliated	455 00	
Contributing and Sustaining	757 00	
Life	1,000 00	\$3,987 74

Contributions

General	\$213 00	
† Guaranty	355 00	
Committee on Obstetrics	25 00	
Committee on Education	2 00	
* Special Contribution, Babies' Dispensary and Hospital, Cleveland	950 00	1,545 00

Exhibition (Rentals for use of Traveling Exhibit)	653 85	
Transactions (Sale of printed copies)	284 50	
Received from Journal of the American Medical Assn. (For report of Cleveland meeting)	19 00	
Refund by Georgia State Nurses' Assn. of travel- ing expenses of Executive Secretary	39 56	
Interest on bank balances	49 97	
Sale of reprints	20	6,579 82
		<u>\$7,407 35</u>

Disbursements:—

Salaries	\$2,600 00	
Rent of Office	250 00	
Furniture	75 40	
Printing, General	818 68	
Transactions of Cleveland Meeting		
Printing 1,500 copies	\$909 57	
Distribution—postage	8 04	
expressage	77 16	
wrapping	20 75	
local delivery	6 70	1,022 22
Postage	373 24	
Office Supplies	143 90	
Clerical Help	383 45	
Telephone	41 88	
Exhibition (repairs and other expenses connected with traveling exhibit)	239 97	
Expressage and Telegrams	49 77	
Multigraphing and Typewriting	60 30	
Traveling Expenses	191 37	
Miscellaneous (extra janitor service, water, ice, car fare, clipping service, insurance on transac- tions, etc.)	141 82	6,392 00
Balance on hand November 15, 1913		<u>\$1,015 35</u>
General Fund	\$409 11	
Exhibition Fund	606 24	

Balance on hand November 15, 1913..... \$1,015 35

† Through the Finance Committee, in 1911, pledges amounting to \$385.00 annually for three or five years (\$55 for 3 years and \$330 for 5 years) were received toward a Guaranty Fund. These were exclusive of the annual memberships.

* Completing payment of \$2,586.21 pledged in 1911 toward cost of Cleveland meeting, publication of Transactions and other expenses.

Respectfully submitted,

AUSTIN McLANAHAN, *Treasurer*

American Association for Study and Prevention of Infant Mortality,
Baltimore, Md.:

In compliance with the request of your Executive Committee, we have made an audit of the accounts of the American Association for Study and Prevention of Infant Mortality for the year ending November 15, 1913, and find them correct, as stated above.

Very truly yours,

Baltimore, Md., Feb. 2, 1914

ALEX. BROWN & SONS

INFANT MORTALITY, ANCIENT AND MODERN: AN HISTORICAL SKETCH

* ADDRESS BY THE PRESIDENT

L. EMMETT HOLT, M. D., LL. D., Professor of Diseases of Children, Columbia University, New York

In considering what subject I might bring before you upon an occasion like this, it has occurred to me that perhaps a general review of the changed attitude of society toward infants might prove not uninteresting—a change so marked as to seem almost revolutionary. I have tried to trace from the earliest times the growth of the modern conception of the value of infant life—how it has come about, by what influences it has been stimulated, and by what agencies the betterment of conditions has been effected, with the hope that looking at our work historically we may better appreciate the importance of what has been done and see its significance in relation to the future.

The problem of infant mortality is one of the great social and economic problems of our day. No resources of the State need so much to be conserved as do its children. A nation may waste its forests, its water power, its mines and, to some degree, even its land, but if it is to hold its own in its struggle for supremacy its children must be conserved at any cost. On the physical, intellectual and moral strength of the children of today the future depends. In all training and education physical considerations must come first. Unless the infants are saved there will be no children to educate. It is not true, as has sometimes been assumed, that a nation as a whole is improved physically by a high infant death rate. Visitors to the marasmus wards of a modern infants' hospital often remark upon the uselessness or futility of saving these infants. They look upon the effort as misguided philanthropy and almost as a perversion of medical science, arguing that however praiseworthy from a humanitarian point of view to save such infant lives, it is false economy and does not improve the race; that it interferes with the law of natural selection, which is the survival of the fittest; that by efforts to keep the feeble alive, degeneration of the race rather than improvement in it is favored.

* Presented at the General Session, New National Museum, Friday night, November 14, 1913.

The argument is not a strong one and is based upon erroneous premises. In the first place, most of those who in infancy are regarded as physically unfit were healthy at birth and are merely the victims of a bad environment, improper feeding and neglect—conditions which it is quite possible to remove. When these obstacles are overcome these infants not only have the same chance to survive, but to grow into healthy, even robust, children as have others. How many of the world's brightest geniuses would have been lost had this law been rigidly applied, who can say.* It is hard to tell who are the unfit. A high infant mortality results in a sacrifice of the *unfortunate*, not the *unfit*.

Again, many of the causes which produce infant deaths are at the basis of delicate health and physical deterioration in those who survive. Such children later may become a burden to society. It is not enough to protect infants from early death; it is equally important to remove so far as possible those pernicious influences which have such an injurious effect upon the child in the modern city and tend to make him so greatly the physical inferior of the town or country dweller of a half century ago. Excessive mortality among infants is not a question which concerns the cities only nor the poor alone. In matters of health the whole community stands together, although the effects of unfavorable conditions always fall most heavily upon the poor and upon the young.

A high infant mortality is in no sense a protection to our body politic. We must eliminate the unfit by birth, not by death. The race is to be most effectively improved by preventing marriage and reproduction by the unfit, among whom we would class the diseased, the degenerate, the defective, and the criminal. In working for the survival of the feeble and the unfortunate we are not contravening nature's law and striving to save the unfit.

* "One Christmas day a premature posthumous son was born in England of such an extremely diminutive size and apparently of so perishable a frame that two women who were sent to Lady Pakenham, at North Witham, to bring some medicine to strengthen him, did not expect to find him alive on their return. He would have inevitably been consigned to the Caverns of Taygetus if the two women had carried him to Spartan Tryers. As it was, the boy grew up into Newton, lived more than fourscore years, and revealed to mankind the laws of the universe. If he had perished, England would not have been what she has in the world. . . . In Paris one evening a puny child in a neat basket was picked up; he had been left at the church door. The commissary of police was about to carry him to a foundling hospital when a glazier's wife exclaimed, 'You will kill him in your hospital. Give him to me, I have no children, I will take care of him.' It was D'Alembert, who made innumerable physical discoveries."
—William Farr.¹⁸

POLITICAL AND ECONOMIC CONSIDERATIONS

We have been considering the question somewhat more especially from its individual and sociological side. The political or economic side is not less important. In several European countries the greatest argument for the protection of infancy is to be found in a steadily falling birth-rate, so rapid as to threaten the political position of the nation. Of twenty European countries, nineteen have shown a declining birth-rate between 1881 and 1905, the average decline being 3 per 1,000 of population. Only one state, Bulgaria, showed an increase.¹ In nearly all there has been a steady decline, but with great uniformity this has been more rapid since 1900. The cause or causes of this general fall in the birth rate we cannot here discuss; but judging by the extent of this decline they are certainly not accidental nor temporary.

In the United States our birth records are so imperfect that definite conclusions cannot be drawn from them; but all evidence goes to show that except among the immigrants the same general decline exists as is seen in Europe. The problem of a falling birth rate is not yet with us an economic one, but it may perhaps at no distant day become so.

The situation has been recognized in France for a generation or more. Her statesmen have viewed with alarm the fact that her birth rate was the lowest in Europe. She was among the first, as we shall see later, to grasp the political significance of this fact and to bestir herself to remove causes of a high infant death rate. Germany, also, is now facing the question of rapidly falling birth rate and realizes the imperative necessity of meeting this by reducing the number of infant deaths.

THE SACRIFICE OF INFANT LIFE AMONG THE ANCIENTS

The infant problem is as old as the human race, although in different places and at different periods of the world the viewpoint has changed. Among the savages and barbarians the question was one of getting rid of the superfluous children when mouths became too many for the food supply to fill. Later, among more advanced nations, the weak and feeble were exposed to death because they were assumed to be of no value to the State; only those who were vigorous enough to grow up into fighting men were deemed desirable citizens. In Sparta, the State claimed a right over all children born. Every newborn infant was passed upon by a committee, and upon their approval the child was accepted; upon their disapproval it was

exposed to death. Those who were permitted to live were most carefully reared, with the result that the Spartans became physically the finest race of their time.² Lycurgus, Solon, Aristotle, and Plato all regarded infanticide as proper and desirable to prevent a too rapid increase in population, and also to remove the weak and the deformed.^{3 4} Only the Thebans considered infanticide barbarous and made it a crime punishable by death. Exposure of weak children to death was not frequent at Athens and in that city an establishment existed in which a certain number of illegitimate children were reared by the State.

In Rome the father had the power of life and death over his newborn child. According to custom the infant was placed by the midwife upon mother earth. If left upon the ground, it was a sign that the infant was to be immediately exposed to death; if the father desired to preserve its life, he indicated this by raising the child in his arms and invoking the goddess Levana. This act was known as "*tollere infantem*."⁴ The idea has come down to us in the expression "to raise a child." It is also preserved in the French phrase, "*élever un enfant*."

In the early days of Rome the Greek practice was followed of exposing to death delicate and deformed infants. They were sometimes exposed in the market place, sometimes at the foot of certain pillars, sometimes in the forests and sometimes they were drowned. They were considered both in Greece and Rome the property of any one who found them and who chose to rear them. When no one claimed them they were cared for by the State. When reared by private persons they were often greatly abused, sometimes mutilated and used for begging, and sometimes, it is said, "used for purposes of magic."

Though maternal nursing was commonly practiced among the Romans many mothers in the higher ranks of society neglected it, and Julius Cæsar ridicules such women for carrying little dogs in their arms instead of their own infants. Tacitus, in complaining of Roman degeneracy, says: "Formerly grave matrons attended to their own children as their first family concern, but now they entrust them to some Grecian girl or other inferior domestic."⁵

At a later period the value of infant life began to be appreciated. In the time of Trajan some organized assistance was given to infants. Marcus Aurelius also showed an interest in the foundling. Cicero states that Camillus, when Consul, proposed a tax upon bachelors for the support of infants.⁶

In India and China infanticide was extensively practised from the earliest time; indeed, with the exception of the Hebrews and Assyrians, it was general among all the ancient races. Though sometimes confined to girls, it usually was extended to include also all delicate, feeble and deformed male children. The motives everywhere were much the same—famine, poverty, or the promotion of national efficiency by eliminating the weakling.

The attitude of society toward infant life was determined largely by the relation of the child to the State. Its life was considered of value if it was healthy, vigorous, and especially if it was a boy; but if feeble or deformed and, under certain circumstances and in some countries, if a girl, it was exposed to death without hesitation or regret. That mistakes in deciding who were unfit were sometimes made is shown by the fact that Cyrus, the son of Cambyses, was exposed in a forest, but secretly saved by the woman who was sent to make way with him. The right of infants to life and the value of infant life as such was not recognized until very modern times. The early idea of infanticide was bound up with the authority of the father or the State over the life of the child. In India and China, although infanticide is practised today, it has very greatly diminished, and it does not meet with public approval.

INFLUENCE OF CHRISTIANITY AND THE EARLIEST PROVISION FOR FOUNDLINGS

After the first few centuries of our era a different and more humane attitude toward infant life is discernible. The first evidence of legislation having for its object "abandoned infants" came with the establishment of Christianity in Rome. Before that the authority of the parent was absolute. In the beginning of the fourth century we find Constantine endeavoring to prevent parents from abandoning their children and giving aid to the needy from public funds; because, as he said, "The wants of the newborn child must be filled without delay." In the latter part of the fourth century the Emperors Valens and Gratian ordered that every parent should bring up his own infants; they pronounced penalty against exposing them and made infanticide punishable by death. In 530 Justinian gave liberty to foundlings and proposed that they be educated at public expense, but long wars prevented the carrying out of his plans.⁴

There gradually grew up in the middle ages all over Europe a general sentiment of pity for the foundling or the abandoned infant and this apparently was the chief motive which

led to their reception in churches and hospitals, and later to the establishment of special institutions for the protection and care of these waifs of society. This was almost invariably done by the religious orders, seldom by municipal or State authorities. All that was thought of in the beginning was simply shelter for these unfortunates during their usually brief existence.

In the sixth century at Trèves a marble cradle was first placed outside the door of the church to receive any infant who might be placed there.⁷ Later this example was followed by many churches and afterwards by some public hospitals. It is recorded⁸ that at the end of the twelfth century fishermen in the Tiber caught in their nets so many bodies of newborn infants who had been drowned, that Pope Innocent III. immediately arranged to have infants received in the *Hôpital du Saint-Esprit*; this part of the hospital was named "*Conservatoire de la Routa*."^{*} In 1316 the *Hôpital des Innocens* was founded in Florence.

In the reign of Francis I.,³ toward the end of the fifteenth century, we find a brotherhood formed to care for young infants; and fifty years later the *Hotel Dieu* opened its wards to receive any infants left at its door. These were placed in wards with sick adults and, it is said, usually died in a few days. Several private homes or shelters for their reception were opened during that century, but until the end of the seventeenth century no public foundling asylum existed in France.⁸ Not long after this, special institutions for foundlings came into existence over the continent of Europe. Practically all these were under the aegis of the Church; shelter and care for these children were furnished as a religious duty.

The Society of St. Vincent de Paul in 1638 seems to have been the first to influence public authorities to acknowledge the civil existence of foundlings.⁸ A little later Louis XIV. recognized the value to the State of these infants and gradually the idea grew that the foundling not only had a right to life, protection and care, but might be of value to the State. The provisions for their needs were, however, very meagre and wholly inadequate.

What the infant mortality was in the period of which we have been speaking must be left to conjecture. No statistics which are at all reliable are at hand. Both in public institutions and out of them the death rate must have been something appalling under conditions then existing.

* "The wretched mothers dropped their babies on the foundlings' wheel of fortune (*Routa*) instead of on the street."—William Farr.¹⁸

THE BEGINNING OF VITAL STATISTICS

A beginning of vital statistics in England was made in 1538⁹ by Henry VIII., who ordered that the incumbent of every parish keep a true and exact register of all christenings, weddings and deaths. Although a similar order was issued by Elizabeth in the next reign it was not until long after that anything like complete records were kept. In the city of Geneva, however, fairly full and complete vital statistics are available since the year 1549.¹⁰ But even in the most enlightened countries as a whole little that is reliable can be obtained in vital statistics until about a century ago, and in the majority of States for hardly half that time. In 1812 a law was passed in England prescribing the form of registration for all deaths and making one liable to a fine who did not comply.¹¹ However, "bills of mortality," as they were called, were kept in many towns before that time, which enable us to form some idea of infant mortality for an earlier period. Our own country has been disgracefully behind most of the civilized nations, and even now in only a few of our states are proper records kept. Vital statistics are a form of national book-keeping which is most essential if we would know what actual conditions are. We in the United States have been most remiss in the matter of marriage and birth records. One of the first tasks to which this Association has addressed itself is to secure throughout the country complete figures of birth registration. The importance of such records for a study of the problem cannot be overestimated.

INFANT MORTALITY IN THE SEVENTEENTH AND
EIGHTEENTH CENTURIES

While we cannot know the infant death rate in percentages in Europe in the seventeenth and eighteenth centuries, we get some hints of what it was from certain facts in history. Justin McCarthy, in his "History of the Four Georges," speaking of Queen Anne, says that Anne had no children living at the time of her death, 1714; she had borne her husband a great many children, eighteen or nineteen, it is said, but most of them died in infancy, and only one, the Duke of Gloucester, reached his eleventh year. Granting that many of them were probably delicate children, what a revelation this is of the ignorance of the care and nutrition of infants. If such a thing was possible in the royal family, what must have been the conditions throughout the kingdom generally.

Gibbon, the historian, born a generation later, in 1737, in his "Memoirs" says: "I was succeeded by five brothers and one sister, all of whom were snatched away in their infancy." He continues, "The death of a newborn child before that of its parents may seem an unnatural, but it is strictly a probable, event, since of any given number born the greater number are extinguished before their ninth year. Without accusing the profuse waste or imperfect workmanship of Nature I shall only observe that this chance was multiplied against my infant existence." He goes on to state that so feeble was his constitution that in the baptism of each of his five brothers his father's prudence successively repeated his Christian name of Edward, that, in case of the death of the eldest son, this name might still be perpetuated in the family. Yet Edward Gibbon lived to the age of fifty-seven years, and became one of the great men of his day.

In his time that a large proportion of infants born should die was an accepted fact. It need not surprise us when we consider the conditions of medical science at the time, the dense ignorance regarding private and public hygiene and sanitation, and the consequent ravages of infectious diseases.

The infant mortality in institutions was much greater than elsewhere. In the Lying-in Hospital in Dublin from 1781 to 1785 it is said¹² that 16.5 per cent of infants born died before they were two weeks old. By opening the windows and attending to ventilation and cleanliness this was reduced to 4 per cent within a few years mainly by the elimination of tetanus of the newborn, to which previously more than nine-tenths of the deaths were due. In the British Lying-in Hospital from 1750 to 1759 the mortality was 6½ per cent of the infants.⁹ Percival,¹³ writing in 1789, states that in Manchester half the children born die before reaching the fifth year. A writer in a French medical journal,¹⁴ in 1780, makes the statement that in that country half the children born died before the end of the second year. At this time, the latter half of the eighteenth century, we are warranted in stating that the infant mortality generally was over one-fourth of the total mortality, and the mortality under five years over half the total mortality.

That the infant death rate was excessively high excited no comment or surprise. This had always been the case; and it was considered unfortunate but inevitable. Human life was cheap, and infant life cheapest of all. Gradually the opinion grew that this was not so inevitable and necessary as it seemed. There appeared now and then in different parts of

the world men who were impressed with the idea that much of this sacrifice of infant life was unnecessary and might be prevented. Some of these persons were philanthropists, but most of them were physicians who foresaw the dawn of a better day for the infant in the not distant future and recognized some of the means through which this might be hastened. The value of human life, and especially the intrinsic right of the infant to a chance for life, gradually came to be recognized during the nineteenth century. It seems to have been one of the results of the growth of democracy, which spread so rapidly after the French Revolution.

Although the economic value of infant life and the importance of saving the children were not yet appreciated, there were even in this period voices of warning and protest raised against the conditions then prevailing with reference to infants. Black,¹⁵ writing in 1782 an historical sketch of medicine, states that in Great Britain during the latter half of the seventeenth century there were only three men, one of whom was the renowned Sydenham, who gave any special attention to the diseases incident to young infants. He says: "Up to this century the management of these tender creatures in sickness was left to ignorant old nurses and rude quackery. Even at present the bills of mortality, in cities especially, are a melancholy proof that the carnage made among the young part of the human species has not yet attracted the attention of medical writers."

In 1749 William Cadogan,¹⁶ of the London Foundling Hospital, talks more hopefully. He says, "It is with great pleasure I see at last the preservation of children become the care of men of sense; the publick will soon find the good and great effects of it. Children have been left too long to the superstitious care of old women. What is needed is a philosophic knowledge of nature, to be acquired only by learned observation and experience." These and other contemporary writings in the same strain give us glimpses of conditions which may be regarded as fairly typical of the times.

CONDITIONS IN ENGLAND AT THE BEGINNING OF THE NINETEENTH CENTURY

The early part of the nineteenth century witnessed a considerable fall in infant mortality due to the introduction of the practice of vaccination. To us at the present day that small-pox was ever a large factor in infant mortality seems surprising. Yet writers of that day tell us that small-pox committed its chief ravages upon children under, or about,

the age of two years; also, that one-fifth of all the children born died of small-pox before reaching the tenth year, and that one-third of all the deaths of children were due to this cause.¹⁷

An interesting picture of conditions existing in England in the beginning of the nineteenth century is given by John Bunnell Davis in a small book published in 1817, with the following title: "A Cursory Inquiry into Some of the Principal Causes of Mortality among Children, with a View to Assist in Ameliorating the State of the Rising Generation in Health, Morals and Happiness."¹⁷ Davis is to be regarded as a pioneer in this field. His work shows not only evidence of careful study of the problem of infant mortality as presented by the conditions existing at his day, but also a grasp of principles to be applied in remedying the evils of the time. We find him quite modern in his ideas, and many of the things advocated by him are those upon which we of the present day place the greatest emphasis. He strongly urges the importance of maternal nursing and the moral obligation of it.

He says, "A practice more fatal in its effects than the combined operation of all other causes is that of wet nursing and the high mortality among wet nurses' infants." Again, "One way for men to become good husbands and fathers is for women to become real mothers." He saw that maternal nursing not only saved life, but was an important factor in the future health of the child. "This practice [maternal nursing] so loudly called for by nature renders children more robust, and they are better able to resist a thousand causes of death which threaten them in the arms of a stranger." "Is it," he says, "too much to hope, to expect, indeed, that mothers will see the necessity of this and will practice a virtue so noble, so precious, and so natural." The economic importance of preventing infant mortality did not escape him. "To promote the health and vigor of its subjects is the primary object of a nation's strength."

Davis laments the fact, which was very patent in his day, "that from causes inexplicable the disorders of children do not appear to have met with that exclusive and peculiar attention which their obscure and fatal nature requires." Though he met with much opposition and many discouragements, his efforts resulted in what seems to have been the only public dispensary for children in London in 1816.

Davis perceived the educational value and practical importance of combining with the special work of his dispensary for children social service by a voluntary corps of house visi-

tors. He says: "If benevolent ladies could be prevailed upon to form district committees to visit and inspect the health of sick indigent children, much practical good would result from a medical and moral point of view. By such visitations as these it may be predicted that the instances of mortality among children will be quickly diminished; at the same time that such benevolent females corrected the absurd notions and errors of the poor as to the domestic management of their children." He also printed and circulated leaflets giving rules for the care of children at home and directions for the management of common ailments. Three methods of feeding were in vogue in Davis's day—maternal nursing, which was of course the rule, though it appears not infrequently given up voluntarily; wet nursing, the infant being usually taken to board in the home of the wet nurse; and artificial feeding, or "bringing the child up by hand." The last-mentioned method was almost invariably unsuccessful. The mortality was appalling, comparatively few survived when so fed.

EFFECTS OF URBANIZATION OF POPULATION AND OF THE FACTORY EMPLOYMENT OF WOMEN

The reduction of infant mortality following the introduction of vaccination was only temporary, for two great influences dependent upon the industrial development of the time came into existence, both of which were most prejudicial to infant life. These were the rapid growth of cities at the expense of the country and the extensive employment of women in factories. The urbanization of the population of most European countries has gone steadily forward with increasing rapidity since the beginning of the nineteenth century. In America it has been marked only since the Civil War.

City life a hundred or a hundred and fifty years ago, though cities were small as compared with those of today, was not safeguarded as it now is by modern sanitation, with its laws of hygiene. The older cities were compactly built, with narrow streets, very inadequate provision for light and air, and very few parks or breathing places. Plumbing was unknown, sewerage very rare, the water supply scanty and easily contaminated, and such preventive measures of disease as food inspection, quarantine and disinfection in contagious diseases, and proper street cleaning were still undreamed of. The average city, with a population of 20,000 or 30,000 at the beginning of the nineteenth century, exhibited unsanitary

conditions and often an overcrowding which can be compared only to the very worst districts in New York or London today. When in such surroundings, a mother relinquished the personal care of her infant to become a factory employée, and when maternal nursing was replaced by substitute feeding carried out by one densely ignorant of the first principles of the subject, the results can well be imagined.

The relation to infant mortality of the employment of women in industries away from their homes is a question of real and fundamental importance. No single factor is so prejudicial to infant life as taking the mother away from her infant after the first month, often sooner than this, and keeping her away at work for six days in the week, thus depriving the child of the advantage of maternal nursing and substituting for the mother's care usually that of a young, ignorant, inexperienced person, frequently only a child, often an invalid. Factory work told even more upon the health of women than it does today. Work was harder, hours longer, wages smaller and the factories frequently most unsanitary.

CONDITIONS IN EUROPE IN THE MIDDLE OF THE NINETEENTH CENTURY

The conditions prevailing in Europe in the middle of the nineteenth century are pretty fully set forth in the *Journal of the Statistical Society* of London, in 1866.¹⁸ At this time, about 1860-61, the infant mortality per 1,000 of registered births was as follows: Sweden, 141; Scotland, 149; England, 170; France, 223. In all of these countries the birth records are fairly complete and the figures may be taken as indicating comparative conditions in the different countries. The lower mortality of Sweden and Scotland was attributed partly to the cooler climate and partly to the more general practice of maternal nursing and its continuance for a longer period. Wide differences were seen in different towns and districts of the same country, this varying very constantly with the extent to which women were employed away from their homes, whether in factories, in agriculture or other industries. In one province in Finland, where the mortality was excessive, investigation showed a great lack of maternal nursing. While the mothers were away at work in the fields the infants were fed, according to an ancient custom, upon sour milk from a horn suspended over the cradle. This contrivance was evi-

dently the prototype of the nursing bottles with long glass and rubber tubes that were very generally employed with us until twenty-five years ago. The state of the milk and the results seem to have been much the same in both instances.

In France, the treatment of infants, especially in the country districts, is described as deplorable. A contemporary writer¹⁸ says: "The women work in the fields nearly as much as the men, which affects feeding and all domestic arrangements." The bad results and high infant mortality were attributed largely to artificial feeding or bad wet nursing. There was exceptionally little breast feeding and even when ill, infants were still fed on insufficient cow's milk and pap, or bad soup and black bread. "The mothers cannot, or will not, nurse their infants because they are obliged to go out to work." The same writer concludes that it was common experience for three-fourths of the infants fed in this manner to succumb in a very short time.

In Norway, notwithstanding the poverty of the peasants, the infant mortality was low. Because of their poverty, breast feeding was almost universally practiced and frequently continued until children were two or three years old. That breast feeding was found to be the cheapest by these people at this time is suggested which may well be pondered by those seeking a solution of the problem of infant mortality at the present time.

In England the infant mortality bore a very close relation to the extent to which women were employed in factories. An interesting demonstration of this is seen in the cotton mill district of Lancashire during our Civil War. During the first year of the war the imports of cotton decreased 40 per cent with the result that when the conditions at the mills were at their worst there were in Lancashire alone 247,000 operatives idle and 165,000 others working on part time. Of the entire population of the district, 24 per cent were receiving charitable relief. The effect of this was a marked increase in the general mortality as a result of privation and poverty, but a surprising reduction in the infant mortality. In the year before the war it had been 184 per 1,000 births; at the height of the depression of the cotton industry it fell to 168, but rose again after the close of the war, when work in the mills was fully resumed, to 200 per 1,000.¹¹

A somewhat similar thing was seen during the Siege of Paris;¹¹ while the general mortality doubled, the infant mortality fell 40 per cent. Opportunities for outside work being

shut off, women could not go out to work and were compelled to stay at home and so nursed their children.

An investigation was made between 1859 and 1861 into the sanitary condition of England by Sir John Simon and others,¹¹ as a result of which the conclusion was reached that just in proportion to the number of adult women employed in factories or agriculture the mortality of their infants increased; that in districts where the proportion of women so employed was large the infant mortality was from two to three times as great as in the standard districts. The care, or, rather, the neglect, of infants under such circumstances is described as "almost murderous." Homes were ill kept, infants badly fed or starved and the cries of hunger or distress quieted by opiates, which were in great demand in centers of manufacturing industry. An operative of the better class in Birmingham, England, who collected money for expenses attendant upon the death of children in a factory employing 150 women gives it as his opinion that at this time 10 out of every 12 children born to the married women in this factory died within a few months after birth.

An interesting and instructive comparison has been made in England between the average mortality for ten years in eight towns with extensive textile industries, and eight other towns of approximately the same size. The average deaths in the textile towns was 182 per 1,000 of births; in the non-textile towns it was 150. In the textile towns 43 per cent of the married women were employed in industry; in the non-textile towns but 3 per cent.¹¹ There seems thus to be a very definite and intimate relation between the extent to which women are employed in industry and the infant mortality rate.

MILK PRODUCTION IN NEW YORK IN 1840

The situation in the cities of our own country in the middle of the last century was little better than in those of Europe. A graphic picture of the conditions prevailing at the time in New York is given in "An Essay on Milk" by Robert Hartley, which was published in 1842.¹⁹ At that date he states that fully five-sixths of the milk consumed in New York was from cows housed in the city and fed upon distillery waste. Adjoining a distillery at Eighteenth Street and Ninth Avenue were cattle sheds containing as many as 2,000 cows at one time. The animals were kept under conditions which were foul almost beyond description; they had no exercise, no fresh

air, no fresh food and no hay. Their sole food was the so-called "distillery slop," of which they consumed barrels a day. The stalls were rented to the owners of cows for five dollars a year and the food was supplied at nine cents a barrel. The milking was often done by city tramps, who performed this labor for the privilege of sleeping in the cow sheds. Compare for a moment these conditions with those existing in an up-to-date dairy of the present, with its cement floors, white-washed walls, sterile utensils and sterilized milking suits of the trained men. It should be remembered that the conditions alluded to were the rule, not the exception, and that for the great majority of infants deprived of maternal nursing this milk was their food; it was, in fact, the only milk obtainable.

Those who have read Paul Leicester Ford's book, "The Honorable Peter Stirling," will recall that this ambitious young attorney first came into notice as the prosecutor of the milk dealers at the time of which we are speaking.

The mortality records of the time, imperfect though they are, reflect the unwholesome conditions which we have described.

With a population of a little more than 300,000, in 1840 New York had a death rate of 25 per 1,000, and one-fourth of the deaths were in infants and over half were in children under five years. The records of the time in Boston and Philadelphia show about the same conditions prevailing there.

HIGH INFANT DEATH RATE OF THE LAST HALF OF THE NINETEENTH CENTURY

Throughout the nineteenth century, especially the latter half, to its very close, we note a constantly high infant mortality. Although owing to advances in medicine, hygiene and modern sanitation, general mortality records show a fairly uniform decline after about 1870, there was no general fall in infant mortality till 1900.* In many places there were seen side by side a falling general mortality and a rising infant mortality.

* Infant Mortality per 1,000 Births for Different European Countries for Five-Year Periods.¹

	England and Wales	Ire- land	Scot- land	France	Ger- many	Italy	Belgium	Norway	Sweden
1881-'85	139	94	117	167	207	175	156	99	116
1886-'90	145	95	121	166	208	175	163	96	105
1891-'95	151	102	126	171	205	185	164	98	103
1896-'00	156	106	129	159	201	168	158	96	101
1901-'05	138	98	120	139	190	168	148	81	92

It is barely forty years, or only since 1870, that the new interest in the lives of infants has been manifest. This has come about partly through a growth in humanitarian ideas regarding the value of infant life, which has been accompanied by a desire to ameliorate social conditions upon which a high infant mortality depends. This was first felt by individuals, but soon came to be appreciated by municipalities and finally by states and nations. Together with the growth of the humanitarian idea has been the development of sanitary science and preventive medicine and the great advances in our knowledge of the diseases of children which have made it possible to check, to some degree at least, the enormous infant death rate, which had continued almost the same since vital statistics were first kept.

EARLY ORGANIZATIONS TO SAVE INFANT LIFE

Some important organizations affecting child life, most of them originating in France, had been in existence before 1870. Perhaps the most valuable was the *crèche*, or day-nursery. The first one was founded in 1844 by Marbeau, mayor of the first arrondissement of Paris, who, observing the neglect of infants whose mothers were at work, and, finding that no provision for their care existed, conceived the idea of a place where such a thing could be properly done. By the aid of private subscriptions a room was secured in a poor street, twelve willow cradles were installed and the whole placed in charge of a nun, while a doctor visited the place daily.²⁰ It is an interesting sidelight upon the care of infants of the time to note that a part of the organization consisted of two persons who were engaged as "rockers."

From this humble beginning the idea rapidly spread and many more *crèches* were soon opened. Three years later the *Société des Crèches* was formed to standardize methods of work and facilitate cooperation. From France the *crèche* rapidly spread to Austria, Italy and Germany, and soon they were opened all over Europe. Most of them received some public support, but they depended largely also upon private contributions.²⁰ They were usually in charge of nuns. While the *crèche* has, perhaps, not been a large factor in reducing infant mortality, it has done much in calling attention to the neglect of infants of working women in cities and arousing public interest in the welfare of infants generally.

In 1865 a society was organized in France known as the *Société Protectrice de l'Enfance*.²¹ Its chief objects were to encourage maternal nursing, watch over infants sent out to be wet-nursed, and instruct mothers in all classes of society in the care of their children. As a result of ten years' work this society made a great impression on the infant mortality in the district in which it operated.

France again led the way in 1876 in the organization of a Society for Nursing Mothers (*Société d'Allaitement Maternelle*).¹¹ This was destined to have a wide influence in the reduction of infant mortality, for its example has been followed and its methods imitated in many cities and countries down to our own day. It approached the infant problem from a different standpoint and sought to save the child by caring for the mother. Before confinement, homes or refuges were opened where poor and destitute women could be sheltered for a few weeks until they were sent to maternity hospitals, and assistance or partial support was given to nursing mothers during the first year to make breast feeding possible. This aid was supplemented by regular monthly observations of these infants by physicians and visits by social workers. The beneficial effects of this work were at once evident. In sixteen years this society cared for 10,000 women in pre-confinement homes, and Pinard says that no women received into maternity hospitals from these homes died in childbirth, and that a noteworthy improvement was seen in children born; they were above average weight and were much more vigorous than the children of women not receiving such care. During the first eighteen years of its existence the society aided nearly 40,000 mothers.

EARLY LEGISLATION

In 1872 there was passed in England what was known as the Life Protection Act,¹¹ which was directed against the crying evils resulting from the practice of farming-out infants. It provided for the registration and licensing of all places where infants apart from their parents were received for hire; to this a provision for inspection was subsequently added.

Two years later, in 1874, France passed a somewhat similar law.⁶ It was known as the Roussel Law, or *Loi Protectrice des Enfants*. The custom prevailed extensively at that time of sending young infants from the cities into the provinces to be wet-nursed. Comby⁶ states that the infant mortality under these conditions was appalling. About 20,000 infants were

sent from Paris in a single year, and the death rate among them was 75 per cent. In some places it was even higher than this. The death rate among the infants of wet nurses was also enormous. The Roussel law aimed at the correction of abuses which had grown up in connection with this wet-nursing industry and provided for government inspection of all places where infants under two years were cared for. The passage of these two statutes is noteworthy as being the first public recognition of the problem of infant mortality and the first legal efforts made to diminish it.

The factory employment of mothers was early recognized, and, as has already been mentioned, was an important cause of a high infant mortality.²² The next legislation relating to this subject was the passage of laws which forbade the employment of women in factories for a certain number of weeks before and after confinement.* Such a law was first passed in Switzerland in 1877.

This example was followed by Hungary in 1884, and shortly after this time in turn by Austria, Holland, Belgium, England and Germany.¹⁰ These laws varied somewhat in stringency, but all aimed to secure for the mother for a certain number of weeks, usually for six after her confinement, and in some cases for two weeks before, a certain immunity from labor of this kind.

It has rarely happened that much has been accomplished by legislation in reforming social evils and this has been no exception. But it was another step forward. Where employers voluntarily continued wages during this period of

* European Laws Relating to the Employment of Women in Factories.¹⁰

Switzerland	1877	8 weeks, of which at least 6 after birth of child.
	1897	Law amended requiring a longer rest before confinement and special regulations regarding certain occupations.
Hungary	1884	4 weeks after confinement; aided by insurance.
Austria	1885	4 weeks after confinement; medical aid and a daily subsidy equal to 60 per cent of the earnings of the working woman.
Holland	1889	4 weeks after confinement.
Belgium	1889	4 weeks after confinement.
England	1891	4 weeks after confinement.
Germany	1891	4 weeks after confinement if medical certificate is shown; otherwise 6 weeks. Compulsory sickness insurance giving aid 4 weeks after confinement.
Portugal	1891	4 weeks after confinement.
Norway	1892	4 weeks after confinement if medical certificate is furnished, otherwise 6 weeks. Women must not engage in dangerous, unhealthful or exhausting trades during pregnancy.
Spain	1900	3 weeks after confinement; employer to pay wages.
Sweden	1901	4 weeks after confinement; less if a medical certificate is produced.
Denmark	1901	4 weeks after confinement; less if a medical certificate is produced.

enforced cessation from work, as a certain number did, its beneficial results were very striking. In other cases the operation of the law often was only to substitute for the previous work in the factory harder work at the home. The main benefit of these statutes was perhaps to arouse public opinion by calling attention to the disastrous effects of hard work under such circumstances both upon the health of mothers and their infants, and to lead to efforts to ameliorate these conditions by assistance in other ways. The enlightened employer of today recognizes the fact that efficiency of labor is promoted by securing to employees good sanitary conditions for work; but a generation ago this was hardly thought of, much less practiced.

RECOGNIZED AS A SOCIAL PROBLEM

Interest in infant mortality as a social problem was, I think, first shown at the Dublin meeting of the National Society for the Promotion of Social Science in 1861. At this session William Moore¹² made an address upon the causes of excessive infant mortality in which he forcibly set forth the conditions then prevailing in Great Britain and emphasized the vital importance of this subject in its social and economic aspects.

Ten years later in 1871, at a meeting of the Social Science Association in Philadelphia,²³ the subject of infant mortality was a topic of discussion. Attention here also was called to the national importance of the welfare of the infants who are, or should be made, a source of wealth to the state.

At the first meeting of the International Congress of Hygiene, held in Brussels in 1876,²¹ the subject of infant mortality was considered. One of the great causes there assigned for a high infant death rate was popular ignorance of the laws of hygiene, and a strong plea was made for the more thorough instruction not only of parents, but of young doctors and midwives in this subject. At the second meeting of this Congress, held in Paris, in 1878, the hygiene of infancy was the first topic for discussion. At this session a committee (consisting of Bertillon, Marjolin and Bergeron) appointed to make an investigation made a strong presentation of the subject of infant mortality, its causes, extent and remedies. This drew forth a full discussion and excited great public interest.

Since that time, but especially since 1890, nearly every congress of hygiene or social science has discussed the problem of infant mortality. I will mention only a few of the

more important organizations and meetings for considering this question: The National Congress for Infancy at Florence in 1896; the League against Infant Mortality, Paris, in 1902; the International Congress of Milk Depots, in Paris, in 1905; the National Conference on Infant Mortality, in London, in 1906; the International Union for the Protection of Child Life, in Brussels, in 1907; a large exhibit in Berlin in 1908, portraying the problem of infant mortality in all its phases; a second National Conference on Infant Mortality, in London, in 1908; the German Society for the Protection of Infants, in Munich, in 1909; the American Association for Study and Prevention of Infant Mortality organized at New Haven in 1909; the Third International Congress for the Protection of Infant Life in Berlin, in 1911; the English-Speaking Conference on Infant Mortality, in London, in 1913.

These organizations and meetings are evidence of the world-wide interest in the problem of infant mortality, and also give an idea of how very recent all this interest is. Public concern regarding this question is only about thirty years old and the real awakening has come since the beginning of this century.

CAUSES OF THE MODERN AWAKENING

In seeking for the causes of this awakening many factors must be considered. It has not come about from any one influence, but is a result of many; the motives which have aided in bringing this about have been varied. Some have been stronger in certain countries, while in other lands different influences have been at work. Speaking generally for the world at large, the humanitarian motive has probably been the strongest one. It is the general desire for a betterment of social conditions which has been most widely influential. This, I think, has been the chief motive in America.

Among the European nations, especially France, it is the economic aspect of infant mortality which has been uppermost. It is surely not an accident that the French have been foremost in their interest in this question and that so many of the organizations or agencies for the reduction of infant mortality have originated with them. For more than two generations they have viewed with apprehension the fact that with a high infant death rate their birth rate was the lowest in Europe and steadily falling. (It has been from 20 to 22 per 1,000 of population for the past ten or fifteen years; it was 19.7, the lowest then recorded, in 1910.) How to

save their infants has become a public question of the first importance. With a smaller loss by emigration than either Germany or England, the population of France in the twenty years from 1891 to 1910 has increased less than a million, while during the same period Germany has increased over fourteen millions and England over seven millions. At the present time the figures giving the birth rate are published quarterly in the general press and the returns are scanned with as much interest by publicists as the yield of wheat or the factory output. It is not then surprising that a government decree was issued only last year by the Minister of Finance for the formation of a large and influential Commission to study this question.

Germany also has been greatly stirred by the economic aspect of infant mortality. While her birth rate has been and still is considerably higher than that of France, its fall, especially in the past ten years has been more rapid. From 1890 to 1892 the average birth rate was about 35.5 per 1,000, but it declined steadily, especially since 1902, to 31.1 per 1,000 in 1909. In five of the largest German cities the decline in the birth rate from 1901 to 1910 has been from 33.5 to 24.1 per 1,000.

A third influence has been the progress made in medicine and sanitary science and especially the enormous advances in preventive medicine in the last thirty years, by which it has been shown what was possible in hygiene and public health. Better sewerage, pure water, clean milk, cleaner streets, food inspection, attention to ventilation and to all matters of general hygiene, have done much to overcome the unfavorable effects of city life upon the very young. There has grown up a certain noble rivalry among the health departments of our greater municipalities in lowering the general mortality rate, and especially the infant mortality, as being one of the largest factors. This ambition to lower all previous records is characteristically American, but it has brought about results which are truly remarkable and which make all previous accomplishments in this direction seem like the work of amateurs.

THE MILK DEPOT AND INFANT CONSULTATION AS INFLUENCES

Let us now pass to a consideration of some of the means employed to bring about results of such magnitude. I have already mentioned the French Society for Maternal Nursing, which since 1876 emphasized what is now known as pre-

natal care of the infant, and also the continuous observation of young infants by trained visitors. Two other important organizations, both French, came into existence in 1892 and 1894, respectively. These were the Consultations for Nurslings (*Consultations de Nourissons*) and the Milk Depot, or *Goutte de Lait*.²⁴

The first Consultation was organized by Budin in Paris in connection with a maternity hospital. After discharge, the infants were brought back for regular weighings and observation and examination for a period of two years; the mothers instructed in infant hygiene and feeding and advised in minor ailments. Breast feeding was encouraged and assisted; when it was not possible, sterilized milk in separate feeding bottles was supplied. The great advantage secured by this plan was continuous, intelligent supervision of the mother and, through the mother, of the infant from its birth.

Two years later, in 1894, the first milk depot was established by Dufour. Its purpose was proper artificial feeding under medical supervision. These two organizations, the Consultation and the Milk Depot, have since in many places been merged into one. They may be considered as really marking the beginning of the modern movement for the reduction of infant mortality. They have spread all over the civilized world and have proved to be, when properly conducted, one of the most effective agencies, if not the most effective agency, known for the reduction of infant mortality.

Several things are essential to the successful operation of a milk depot. Budin has well said that the Consultation is worth just as much as the physician who conducts it, but no more. This work must be done by physicians, not trained nurses nor social workers. The physicians must themselves be properly trained for their task, and, finally, they must be paid for it. The best results cannot be obtained by placing this responsibility upon voluntary workers. The milk depot, unless properly conducted, may, by increasing the facilities for artificial feeding, tend to discourage maternal nursing, with a final result, possibly, of increasing infant mortality. While the distribution of clean, pure milk is important, it should be realized that the instruction of the mother and continuous observation of the child play a vastly larger part. Everything possible should be done to encourage breast feeding and to aid it. The inexperienced mother is thus guided not by the advice of ignorant and superstitious relatives or friends, but by an intelligent and experienced person, who not only tells her what to do, but shows her how to do it.

The expense of conducting milk depots and consultations upon a large scale is so great that private philanthropy cannot be expected to bear it. They should be supported by the municipality. In this way standardization of methods, proper supervision and cooperation may all be secured.

OPERATION OF THE MILK DEPOT AND CONSULTATION IN VARIOUS COUNTRIES

The milk stations and infant consultations are operated somewhat differently in different places. In New York the station is in charge of a paid physician and has in summer two nurses and in winter one in attendance. Milk is distributed practically at cost and if the mother is too poor to pay, it is supplied by one of the relief agencies. The nurse visits the mother in the home and teaches her the method of milk modification. Consultations are held in most stations twice a week. One of the chief difficulties is to secure attendance of nursing mothers. Attendance of others is secured by the distribution of milk. During the past three years the needs of New York have been pretty well covered by milk stations. There were 79 in operation during 1911, and 77 since that time. These are open winter and summer. For the past two years about two-thirds of these have been operated by the Department of Health of the city, the remainder by private agencies.

In Paris,²⁵ also, the city is districted and the attendance is general. The infant consultations are often operated in conjunction with, or located in, the maternity hospitals, so that the work of the two is kept closely associated. A weekly stipend of a few francs is given to mothers to enable them to nurse their infants. This aids much in securing regular attendance. In addition to the milk depot and the consultation there exists in Paris what is known as "the canteen," which is a restaurant where any nursing mother can obtain a good meal for a nominal sum, or *gratis* if too poor to pay. The milk depot and consultation are widely found throughout the cities and smaller towns in France and about them center the activities for the reduction of infant mortality. Wherever they exist a marked reduction in the infant death rate has occurred. In some cities in France pensions are given by the municipalities to widows or other mothers with nursing infants, where the family is dependent upon the mother's wages, to enable them to remain at home and continue nursing.

Germany²⁵ has taken its ideas of methods for reducing infant mortality and the care of infants and mothers largely from France and with the German genius for administration they appear to obtain better results, because the municipal authorities seem to have a stronger hold upon the public. The German campaign has been especially effective in dealing with the problem of illegitimate infants. The size of this class is so large and the death rate among them has been in the past so high that in attacking the problem of infant mortality this has been a subject of primary consideration. In Berlin today the work for the reduction of infant mortality is managed partly by the municipality and partly by private beneficence, the two working in close cooperation. The channel of influence is chiefly the infant consultation, which is in charge of physicians and nurses. They are less numerous than in New York, there being last summer only seven of these in Berlin, distributed through the poorer districts of the city. Attendance is secured primarily from the birth registration; nurses visit the homes of the poor and invite married women to come to the consultations and bring their infants.

In the case of illegitimate children attendance is made compulsory by the city authorities, just as in New York is attendance upon the public school, and a truant officer is sent after the mother if she does not report regularly. A small weekly stipend is given which is deemed sufficient to supplement the family income to enable the mother to nurse her baby; the usual allowance is from one to four marks a week. This payment is in itself a very strong motive for regular attendance. When the baby is no longer nursed the stipend is reduced or withheld. Milk for artificial feeding is furnished at cost to those who are unable to pay for the same. Mothers with illegitimate children have different colored tickets from others who attend the consultation, so that they are readily distinguished by the physicians and attendants. And all the rules are much more stringently enforced in their case than with the other group of patients.

In Leipsic²⁶ the illegitimate child becomes at birth a ward of the municipality. From time to time its condition is inspected by public officers. It can be put out to nurse only with persons publicly authorized. It must be produced monthly at the municipal offices and examined. The result is that the death rate of illegitimate infants in Leipsic is just half that of other infants.

In England²⁷ the milk depot has not been very popular or successful. The expense attending the distribution of good milk has stood in the way of its extensive use, and dried milk or infant foods have in many places been substituted. The consultations, however, have attained much influence. To secure attendance a cup of tea is sometimes provided for the mothers at the consultations. This is regarded by them as a sufficient inducement and takes the place of the pecuniary reward which appeals so strongly to the thrifty German and French matron. If in England the measures referred to have been much less successful than in other countries, we must remember that in that country the care and feeding of the infant is generally believed to be the special province of the nurse. The physician is frequently not consulted at all. The effect of this is seen in the undue prominence given to nurses and social visitors in the work of the milk stations and the consultations, something greatly deprecated by the English physician.

As an instance of what can be done in a single community by stimulating public interest and a special incentive, the experience of Huddersfield, England, may be cited. In 1904 Mr. Broadbent, when elected Mayor, announced he would give a prize of one pound to the mother of every child born during his term of office who presented it living and well at the end of a year. A committee of ladies was formed to advise and visit the mothers. The death rate of infants in that district fell from 134 to 54 per 1,000.²⁸

ORGANIZED VISITATION OF MOTHERS OF NEWBORN INFANTS

Another important means for the reduction of infant mortality is by visits by trained nurses to the home of every poor mother of a newborn babe. This was first done extensively by England. A statute known as "The Notification of Births Act"²⁷ was passed in 1907, making the registration of births within thirty-six hours compulsory. The old law allowed six weeks in which to make such returns. As soon as a birth was reported a visitor was sent to the home of every poor mother. If proper advice and assistance were needed visits were repeated. The infants were by these means brought to the consultations; when sick, they were visited by physicians. This plan has been extensively followed in London and many other large English cities, everywhere with striking results.

METHODS FOLLOWED IN NEW YORK CITY

In New York the Health Department has a special corps of 191²⁸ nurses detailed for this work during the summer months. Immediately upon receipt of a birth notice, which must be filed within ten days, one of the nurses is sent to every tenement house home. Subsequent visits are made at the request of the mother, the midwife or the physician, if one is in attendance. These visits are usually welcomed and the early advice much appreciated, especially by young mothers. Each nurse has about 150 infants under her care and visits are made every ten days; oftener, if they are ill. Breast feeding is encouraged and assisted. It is estimated that the city has not less than 50,000 ignorant mothers. This use of the birth records is to be contrasted with a use formerly made of them, where they could be obtained by the manufacturers of proprietary infant foods who used the information as a guide in distributing their circulars and samples.

While mothers are away at work the care of the baby so often devolves upon the older children of the family that Dr. Josephine Baker, Director of the Division of Child Hygiene of the New York Health Department, has organized among girls from twelve to fourteen years in the public schools a "League of Little Mothers." Its object is the teaching, during the summer months, of the principles of infant feeding and hygiene. This was founded in 1911. In different seasons it has had from 171 to 239 centers and an enrolled membership which has varied between 15,000 and 20,000.²⁸ They have weekly meetings, talks are given by physicians and nurses, and examinations are held and medals awarded at the end of the season to the members of each league who have been successful in applying their knowledge. The amount of interest awakened by this organization in the care of infants has been remarkable. The girls learn easily and are most eager to put their ideas in practice. What this will mean when a dozen years hence these girls become mothers, who dare prophesy! This movement has in it possibilities for betterment in the future which are almost without limit.

Nowhere in the world does the problem of infant mortality present greater inherent difficulties than in New York, from the heterogeneous character of the population and an overcrowding which in certain districts is not equalled in any city in the world. European capitals—London, Paris and Berlin—really know very little about the severe intestinal

diseases which carry off infants in such numbers in New York, Philadelphia and our other large cities. What has been accomplished in New York is so conspicuous that the methods followed may well be taken as a guide to other cities and may be described in some detail.

Up to the year 1902 the work was somewhat desultory; the Department of Health had confined its efforts to the three summer months, the chief thing done being the employment of a special corps of physicians to visit sick infants in the tenements. That year the work was greatly enlarged and visiting nurses were employed to follow up cases. Inspection of milk on a considerable scale was begun. During the next six years more and more private organizations came into the field aiming to better child conditions in the city, and together a good deal was accomplished.

The real campaign against infant mortality, however, may be said to have begun in 1908, when the Division of Child Hygiene of the Health Department was organized, to which all the work done by the Department for infants was entrusted. An attempt was made for the first time to coordinate the different agencies working in the city for the same end, by a series of conferences on the Summer Care of Babies, which were largely attended. The summer corps was increased to a force of 28 paid medical inspectors and 111 nurses. The city was divided into 89 districts and an effort was made to reach all sick infants in the poor districts. For the first time visits were made by nurses to tenement homes in which births were reported, and instruction and advice given. Talks to mothers were given in many centers on the hygiene and feeding of their infants and much literature distributed. The campaign was continued for four and one-half months in the place of three months as formerly. Seven milk depots were opened by the New York Milk Committee, and others by private agencies.

Work along much the same lines was continued during 1909 and 1910, each year witnessing better organization and more effective service. By 1911, most workers in this field having become convinced by the experience of the last three or four years of the value of the milk depot as an agency for saving babies in summer, an increased number of such stations were opened.²⁹ In all, 79 were operated throughout the season—15 by the Health Department, 31 by the New York Milk Committee and 33 by various other organizations or by individuals. Some 150 different bodies working for child welfare

or public health were federated in an Infant Welfare Association, thus securing harmony, cooperation, preventing duplication of effort and fixing standard methods of working and of recording results. This organization, afterward known as "The Babies' Welfare Association," has been, and still is, a powerful factor in the results obtained in New York. It has unified effort, and, through its efficient secretary, it has enlisted the cooperation of the press and done much to arouse public interest and shape public policy.

WHAT HAS BEEN ACCOMPLISHED IN NEW YORK

The results shown at the end of the year were a surprise to even the most sanguine. For the preceding seven years the average infant mortality had been 16,527; only once was it below 16,000, and it had been as high as 24,000. In 1911 it fell to 15,030, a reduction of 1,184, or nearly 8 per cent from the previous year.

During 1912 essentially the same campaign was waged not only during the summer months, but throughout the year. This season the majority of the milk stations (55 out of 77 operated) were taken over by the Health Department. The remarkable record of the previous year was again lowered. The total infant deaths for the year were but 14,289, a reduction of 741, or nearly 5 per cent from the low figures of 1911.

Could the results of 1911 and 1912 be repeated in 1913? Many were skeptical, not a few thought it impossible. The year has not yet closed, but for the first ten months, ending November 1st, and including the period of highest mortality, the records of the two previous years have been surpassed. For this period there have been 492 less deaths than in 1912 for the same months.

The results above mentioned are even more striking when the rate is taken in comparison with the infant population for the different years:—²⁸

In 1880, the infant death rate was 288 per 1,000 of living infants.

In 1902, " " " " 168 " 1,000 " " "

In 1908, " " " " 144 " 1,000 " " "

In 1911, " " " " 120 " 1,000 " " "

In 1912, " " " " 109 " 1,000 " " "

In 1913, " " " " 102 " 1,000 " " " (estimated from records of first ten months).

These results have not been accidental. They have been brought about by hard work enthusiastically carried on, but most of all by a carefully planned campaign in which the re-

sources of the city have been concentrated upon a definite object. Furthermore it must be added, by liberal appropriation on the part of the city authorities; without this such results would, I believe, have been impossible. What has been accomplished in New York has been approached in other cities of the United States, and just in proportion to the extent of the operation of life-saving agencies similar to those used in New York. Thus, while New York has shown for the first ten months of this year a reduction of 4 per cent from last year, Chicago for nine months shows an increase of 5 per cent and Philadelphia an increase of over 11 per cent from 1912.

The essential parts of New York's campaign have been:—

Visits by trained nurses to the homes of ignorant mothers of newborn babies.

Extensive development of the milk depot and infant consultation.

Federation in one organization of all the agencies engaged in infant welfare work.

Efforts in other cities to be successful must be made along these or similar lines. The time when individual effort can cope with this problem has passed. The present conditions call for an organized campaign, planned on scientific lines and carried out with business-like efficiency. Only such effort can meet the complex situation as it exists in our large cities today.

ESSENTIALS IN AN INFANT MORTALITY CAMPAIGN

The general motto must be, as often said: concentrate effort on the mother; assist maternal nursing whenever possible by a stipend or by pensions when necessary. If artificial feeding becomes necessary the mother must be taught it with patience and intelligence. But whether nursed or fed, infants must be kept for the first year under close and continuous observation of trained workers. The time was in the not distant past when if parents did not choose to send their children to school they were allowed to keep them at home, and even put them to work. Modern public opinion, however, has decreed that in a sense the child is the ward of the State and ignorant parents are no longer to be allowed to exercise their parental rights in such matters. The State steps in and assumes to decide how much schooling a child shall have and to see that he gets it. Until recently also the authority of parents over the health of children and the control of condi-

tions which affected it was considered to be unquestioned, and only in matters of contagious disease did authorities interfere. But we are now coming to see that the child belongs to the State in this respect also, and that the right of a mother to neglect or starve her infant or feed it bad milk may come to be regarded as an offence against society such as we now regard absence from school. What parents will not do voluntarily the State will either compel them to do or will step in and do for them. Infants will not be permitted to die from neglect and bad feeding, nor will conditions be tolerated which make it possible that a large percentage of infants who grow up in cities live in such surroundings that health and normal physical development is simply impossible.

We have seen the early disregard of infant rights and the indifference with which society regarded infant life. We have traced the gradual growth of the idea that the child was valuable to society, to the State. We have seen how little was accomplished to save infant life through efforts which were guided by human sympathy and pity alone.

What they have failed to do modern science and organization have accomplished. By them the seemingly impossible has been achieved. What of the next step? Our work is to be largely a campaign of education, which shall carry into every city and town of the land a knowledge of what can be done and how to do it. That is the chief function of this Association—to create a public opinion which shall make such an infant death rate as has been seen during recent years in many of our manufacturing cities never again possible. Such conditions are not only a stigma upon that especial community, but a disgrace to the country at large. Looking at the magnitude of the problem presented by infant mortality in our large cities today, we, who are working for better conditions, stand aghast at the difficulties which confront us, but a review of the great advances which have been made in recent years gives us new courage and new hope for the future. We have seen in the last twenty-five years more accomplished in this direction than had been done in the previous two hundred and fifty years; I think one might truthfully say in the previous fifteen hundred years.

Does God fix the death rate? This question has recently been raised in several journals. Once men were taught so, and death was regarded as an act of Divine Providence, often inscrutable. We are now coming to look upon a high infant death rate as evidence of human weakness, ignorance

and cupidity. We believe that Providence works through human agencies and that in this field, as in others, we reap what we sow—no more and no less.

The motto of the New York Health Department should be the creed of all interested in this subject: "Public health is purchasable; and within certain natural limits each community may determine its own death rate."

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REPORT ON THE ENGLISH SPEAKING CONFERENCE ON INFANT MORTALITY

By HENRY L. COIT, M. D., Chairman, American Committee

Following a suggestion made at the Berlin Congress on Infant Mortality in 1911, the British Association for the Prevention of Infant Mortality and for the Welfare of Infancy, organized an English Speaking Conference on Infant Mortality which was held in London, August 4th and 5th, 1913.

The Conference was under the patronage of their Majesties, the King and Queen and the presidency of Right Hon. John Burns, Member of Parliament and head of the Local Government Board.

The Committee on Organization consisted of Sir Thomas Barlow, Chairman, Sir Lauder Brunton, Alderman Benjamin Broadbent and others, assisted by an American Committee authorized by this Association and appointed by President Holt, of which the writer was chairman and Dr. Philip Van Ingen was secretary.

The sessions, of which there were nine, arranged under Administrative and Medical sections, were held in Caxton Hall, Westminster. There was a general opening session and two morning and two afternoon meetings where papers were read by distinguished delegates sent to the Conference by their respective governments, institutions, medical and philanthropic societies.

Practically every English speaking country in the world was represented. The governments of twenty-three different countries appointed in all twenty-nine special delegates, including Sir Charles F. Lukis, Director General of the Indian Medical Service; Dr. Charles A. Hodgetts, Medical Advisor to the Canadian Commission of Conservation; Dr. W. Perrin Norris, Chief Medical Officer of the Australian Commonwealth, Medical Bureau; the Agents General of New South Wales, Queensland, South Australia and Victoria; the Hon. G. H. Butler, Chief Secretary for Tasmania; Assistant Surgeon General, John W. Kerr of the United States Public Health Service; Mr. Sherwin C. Kingsley of the Children's Bureau of the Department of Labor of the United States, and Superintendent C. E. Meleney of the New York Department of Education.

Many societies, hospitals and a large number of institutions were represented by delegates. These included schools for mothers, national and local health societies, training colleges, etc., including every form of welfare work for mothers and infants.

About two hundred public health authorities in the British Isles, appointed one or more representatives, who were present.

The United States, through its Committee and efficient secretary, secured the membership and attendance of about fifty persons, most of whom were physicians who are engaged in American activities for the conservation of infant life.

The total membership of the Conference was six hundred and about this number was in attendance upon the sessions. At the opening general session, the Right Hon. John Burns, presided, welcomed the visiting delegates and presented an inaugural address on infant mortality. The address was comprehensive and showed a remarkable familiarity with the scientific aspects of the question. He emphasized the importance of co-operation of all English-speaking peoples in conserving the health of their infant population and urged that the similarity of life, language and ideals called all to the common duty of conserving the health of their children. He stated that last year 300,000 persons left the British Isles for America, Australia and New Zealand. He mentioned the advantages of the country over the cities as a place to rear healthy children and analyzed statistics to show that the physician was the logical leader in the crusade against infant mortality.

It was stated that the infant death rate was lowest in physicians' families, it being only 40 per thousand. In the upper and middle classes it is 77 per thousand, whereas among artisans it is 100 to 130; among miners, 160 and in the case of unskilled workers, 150 per thousand.

The inaugural address was followed by the greetings of official representatives from the United States, India, Canada, Australia and New Zealand.

At the close of the joint session, members of the Administrative section assembled in the large hall on the ground floor and those of the Medical section in the council chamber on the second floor, to listen to the papers presented to the conference by delegates appointed to read them.

The papers were limited to 2,000 words. At the first Administrative Session, Arthur Newsholme, M. D., medical officer of the Local Government Board was Chairman. The subject was "*The Responsibility of Central and Local Authorities in the Matter of Infant and Child Hygiene.*" Papers were read by Dr. F. E. Fremantle, of Hertfordshire; Dr. Charles A. Hodgetts, of Ottawa; Prof. Richard Caton, of Liverpool; Dr. H. J. Gerstenberger, of Cleveland, and a paper written by Miss Julia C. Lathrop of the Federal Children's Bureau, of Washington, D. C.

At the second Administrative Session, papers were read by Mrs. Kitson Clark, of Leeds; Dr. Helen MacMurchy, of

Toronto; Mr. James Gray, of South Australia; Dr. David Forsyth, of London, and Dr. H. L. K. Shaw, of Albany.

At the first Medical Session the Right Hon. Joseph Pease, M. P., President of the Board of Education, was chairman. The subject was "*The Necessity for Special Education in Infant Hygiene.*" Papers were read by Dr. L. E. La Fetra, of New York; Dr. C. Paget Lapage, of Manchester; Dr. F. Truby King, of New Zealand; Miss Alice Gregory, of England, and Dr. Caroline Hedger, of Chicago.

At the second Medical Session, Sir George Newman, M. D., Medical Officer of the Board of Education, was Chairman. The subject was "*Medical Milk Problems.*" Papers were read by Dr. Henry L. Coit, of Newark, N. J.; Dr. Eric Pritchard, of London; Dr. A. E. Naish, of Sheffield; Dr. Fritz B. Talbot, of Boston; Dr. Frederick Langmead, of London, and one written by Dr. G. R. Pisek, of New York.

At the third Administrative Session, the Countess of Aberdeen, was Chairman, the subject was "*The Administrative Control of the Milk Supply.*" Papers were read by Prof. J. M. Beattie, of Liverpool; Assistant Surgeon General John W. Kerr, of Washington; Dr. William G. Savage, of Somersetshire; Dr. E. W. Hope, of Liverpool, and Mr. J. W. Brittlebank, of Manchester.

At the third Medical Session, Dr. Charles A. Hodgetts, of the Canadian Conservation Commission, was Chairman. The subject was "*Ante-Natal Hygiene.*" Papers were read by Dr. J. W. Ballantyne, of Edinburgh; Dr. Philip Van Ingen, of New York; Mrs. Fowles, of Birmingham, and Dr. F. W. Mott, of London.

At the fourth Medical and final session, a paper written by Dr. Barbara Sutherland, of Glasgow, was read by Dr. A. K. Chalmers; a paper written by Dr. J. L. Huntington, of Boston, was read by Dr. R. Green; one by Dr. J. M. Monroe Kerr, of Glasgow, and one written by Dr. Macleod Yearsley, of London, was read by title.

The transactions, including the full text of the papers have been published and may be obtained from Miss J. Halford, Secretary, 4 Tavistock Square, W. C., London, the price being three shillings net.

The conclusions of the Conference were expressed in the followings Resolutions, which were passed unanimously at a joint session of the sections, on August 5th, 1913:

Resolved, That this Conference urges that the Maternity Benefit be made the property of the mother both in practice and in law.

THAT the attention of the Board of Education be drawn to the extreme desirability of making the grant earned by "recognized" Infant Welfare Centres depend in future on their efficiency, on the number

of registered attendances of the mothers at Consultations, Classes and Talks; and on the number of home visits paid under adequate supervision.

THAT in view of the damage liable to be wrought in growing girls by injudicious stress of education, especially during puberty and adolescence, this Conference feels bound to deprecate any form of education for girls which pays insufficient attention to establishing good bodily health and development and complete fitness for maternity and the practical care of a home.

THAT this Conference urges upon the Government the necessity—in the interests of both mother and child—of legislating for the registration of stillbirths.

THAT this Conference urges upon the Government the necessity for the more complete medical certification of death, and that the medical death certificates should be forwarded to the registrars, as confidential documents under sealed cover.

THAT the time has arrived for steps to be taken with a view to securing the better training of women who apply for the certificate of the Central Midwives Board.

THAT this Conference requests the Executive Committee to communicate with the General Medical Council and the degree and license conferring bodies with a view to infant hygiene being given a more important place in the medical curriculum.

In view of the large percentage of stillbirths and infant deaths directly attributable to venereal diseases and considering that infant blindness and other congenital defects are in many cases due to the same cause, the English-Speaking Conference on Infant Mortality urges the respective Governments of the countries therein represented each to appoint a commission to inquire into the prevalence, the causes, the provision of treatment and the possibility of the prevention of these diseases.

THAT the Executive Committee be instructed to take whatever steps it may think desirable in order to insure a microscopical examination of milk, to be supported by analytical methods.

The Committee on Arrangements made adequate provision for the entertainment and comfort of all delegates. Provision was made for visits to all institutions in London and vicinity where infants and young children are cared for.

A public dinner was laid for members, their ladies and guests at the Hotel Grand Central, which was followed by an informal reception. A reception was given to the members and their friends by the Duchess of Marlborough at Sunderland House.

From every point of view, the English-Speaking Conference on Infant Mortality was a signal success. The attendance was large, the arrangements perfect, the spirit harmonious and the interest in the proceedings very great. Representatives from all English-speaking countries were in accord in fostering a spirit of modern social and scientific progress. It was found that the interests of all were parallel, fundamental principles were identical and the ideals to be attained were on the same mountain.

SESSION ON NURSING AND SOCIAL WORK

Friday, November 14, 11 A. M.

COMMITTEE

CHAIRMAN

MISS HARRIET L. LEETE, Cleveland

SECRETARY

MRS FRANCES FREESE LICHTENSTEIN, Cumberland

MISS MINNIE H. AHRENS, Chicago

MISS M. FRANCES ETCHBERGER, Baltimore

MISS ZOE LA FORGE, Detroit

REPORT OF THE COMMITTEE

FRANCES FREESE LICHTENSTEIN, Secretary

Two questionnaires have been sent out. The first to learn the extent of special training available to prepare a nurse for the care of infants. Detailed conclusions drawn from the replies will be discussed under "Standards for Infant Welfare Nurses."

The second questionnaire was for the purpose of getting in touch with all nurses specializing in baby work; to secure detailed reports of their work; to ascertain as nearly as possible the number of nurses doing infant work exclusively; how many are taking up prenatal care, and what special qualifications and preparations the various organizations are requiring of their nurses.

Letters were sent to seventy-five organizations known to be doing infant welfare work. Forty replies were received. Twenty-five of these reported that they specialize in baby work.

All except the Division of Child Hygiene of the New York City Department of Health and the Division of Child Welfare of Toronto Department of Health are under some sort of private control. A few are under both private and municipal control.

In two cities, Cumberland, Maryland, and Evansville, Indiana, the work is just starting and no reports have been is-

sued. Seven only, make a note of prenatal care. The report from the Babies' Dispensary Guild of Hamilton, Ontario, says, "efforts are being made to broaden the work along prenatal lines. Classes are being held weekly for expectant mothers."

The Washington Diet Kitchen, D. C., and the Babies' Hospital, of Philadelphia, have "plans for the future to afford prenatal instruction."

It was difficult to get the number of nurses specializing in infant welfare work and *more* difficult to get the names and addresses of these nurses. Some associations sending out lengthy reports of very excellent preventive and relief work make no mention of their nursing staff and the name of their supervising or head nurse appears nowhere within the publication. However, it is assumed from the text of the report that much of the actual labor is being done by some one having had hospital training. It is probable that some organizations gave the total number of nurses doing all kinds of visiting and social work rather than the number working with infants only. However, as the reports stand, one hundred and seventy-three were reported in the United States, two in Hamilton, Ontario, and over two hundred connected with the Victoria Order of Nurses.

Almost all organizations require an eight hour day of their nurses. In Boston and in Utica ten hours are required; Philadelphia, eight and one-fourth; Chicago, eight and one-half; and Washington, D. C., only seven.

The qualifications required of nurses to fit them for this work are by no means uniform. Almost all require a diploma from a school giving at least a two years' training. None have made mention of special ability to teach or instruct. A few said "we cannot expect to get nurses with special training for the salary we pay."

The New York Department of Health and the Washington Diet Kitchen require registration. One organization demands good judgment and character. The Babies' Milk Fund Association of Detroit and the Infant Welfare Society of Chicago mention special ability for baby work and special training with children. These two are the only organizations that mention either. I think we may conclude that not much has been demanded in the way of qualification for one of the most important branches of work done by the nursing profession. The other questionnaires may show that the schools are not providing this special training. The papers also lead me to

believe that the salaries offered by most of the organizations are not sufficiently large to induce many to go in for special training for special work, after the usual period of general training is over. I am sure all of us, in our hospital experience, have seen many women with a special fondness, a special ability, an inborn understanding of baby life, and on the other hand have seen others who were excellent women, capable nurses, but not attracted at all by the work in the baby wards. If the former could be singled out by their head nurses and superintendents and encouraged to investigate this line of nurses' work, if their training could be laid out with this in view, I believe the infant welfare work would profit thereby.

STANDARDS FOR INFANT WELFARE NURSES

ZOE LA FORGE, Superintendent of Nurses, Babies' Milk Fund Association, Detroit

In discussing standards for Infant Welfare Nurses we must know something about the kind of training and the methods of teaching in the preparation for such work. An effort was made to collect such information by means of a questionnaire sent to 75 hospitals. Replies were received from 49 hospitals; six of which were special, classified as maternity, infants' and children's. A summary is given as follows, from which our conclusions are drawn. First, the general hospitals:

A minimum educational requirement for 21 schools is one year in high school, and 14 require that the applicant shall be a high school graduate. One requires, in addition, a four months' preliminary course in the university with which the hospital is connected. The length of probation ranges from one month to one year, the average being three months.

The number of infants' beds, 6 did not state; of the remaining 37, 27 have less than 30 beds, 22 less than 20 beds, and 7 less than 10; 34 of these are cared for in children's and maternity wards; 6 are in separate wards.

The time for practical work in wards, 9 did not state with sufficient clearness to classify; 22 have from 1 to 3 months; 3 have 6 months, combining care of infants (obstetric service) and children. Four hospitals have affiliated with special hospitals for children, which unfortunately are not included in the returns on the questionnaire. A comparison of standards under the affiliation would be most interesting.

In theory, lectures and classes, 18 hospitals include in 12 lecture hours or less all instruction in infant care, infant feeding, care of children, prenatal care, sanitation and housing. Ten more have from 1 to 6 hours on infant feeding; 12 have from 2 to 12 hours on care of children; 5 have from 2 to 12 lectures on prenatal care. It is noteworthy that one, the Long Island College Hospital, has lectures on sanitation and housing by an expert—a Board of Health official.

Breast-feeding is emphasized in 31 hospitals; 11 made no statement, and one did not commit itself except that "the doctor's orders were followed."

The question regarding the kind of milk used evidently was not clear; 34 did not answer it; 6 use certified milk, and 2 pasteurized for the modifications.

Sixteen have social service training in obstetric or infant service.

Twenty-four expressed approval of a post-graduate course for teaching and administrative work and public health work; 6 more qualified their assent. There was an identical reverse of opinion regarding special training in infant work for private duty.

The length of the courses of training offered by the special hospital varies from 3 months, a post-graduate course in obstetrics and gynecology, to 3 years, a children's hospital. The requirements for admission varied with each school; a common school education was required of the applicant to the school for nursery maids; a "fair education" of a second; one and two years of high school and a high school diploma of three more; a hospital diploma of the sixth. The number of beds range from 21 to 100, two having from 20 to 30.

The practical work covers a period of six months to one year for infants, with the exception of the post-graduate course in obstetrics. The work with children is from one year to eighteen months.

Lectures and classes are classified in many ways, which makes a careful tabulation somewhat difficult. However, there is no doubt that the theoretical training is in just proportion and balance with the practical work.

The obstetric hospitals qualify their assent to the question as to the fitness of their graduates to specialize in infant work, the one believes her capable of doing administrative work and teaching. Four of the six are agreed that she should have a post-graduate course for public health work.

Briefly, we have our general hospitals giving a training three years long, fitting the average nurse for private duty, and one special course requiring a service as long as the general. For the best service in teaching, administrative, or public health work she must supplement her training. The theory and practice are both inadequate to prepare her for the demands of specialization, which I shall attempt to show is fully justified.

The spirit of the age is expressing itself in intensive development. The facility of communication has made your morning newspaper with the generalities of the whole world's life possible. Its very diversity makes selection and renunciation constantly necessary. For the human mind to dissipate itself

over the length and breadth of the suggestion supplied by daily life would prove its destruction. Because of its own limitations, because mental development is achieved by growth rather than mechanical elaboration, the mind must exercise the right of choice, of selection in its activities which become thereby special in character.

Let the imagination consider the various means of communication: the telephone, telegraph, commerce, printing, photography, moving pictures, each of which affect us all many times daily in many ways, and the complexity of their ramifications. Their extent is quite beyond the imagination. Their growth has been a development of specialization highly organized. Critics have warned us of over specialization, which may be called rather a condition of immaturity. Professor Charles Horton Cooley, in his book on "Social Organization," says: "Our world lacks maturity of culture organization. What we sometimes call—truly enough as regards its economic life—our complex civilization, is simple to the point of poverty in spiritual structure. . . . A strenuous state of mind is always partial and special, sacrificing scope to intensity and more fitted for execution than insight. It is useful at times, but if habitual cuts us off from that sea of subconscious spirit from which all original power flows." The dangers of over specialization are not to be overlooked. They are most likely to grow from quick action and slow thought. Professor J. Laurence Laughlin, of Chicago University, tells us in a discussion on "Monopoly of Labor" that "Discontent acts first and thinks afterwards." Specialization may, perhaps, be considered a natural monopoly. Prof. Laughlin classifies monopoly as natural and artificial. A natural monopoly grows from conditions where efficiency is a part of the scheme, and the higher position is earned by normal competition. The artificial monopoly maintains the "dead level" theory, where a man's a man, little brain or none, with equal share in the earnings, and with specialization left out of the plan. The most striking illustration is the labor union. I believe that the future success of our work depends upon the adaptation of the business of nursing to the principles of a natural monopoly, or the perfection of specialization. Its growth to the present time has laid emphasis upon a standard more uniformly high and I believe we may continue to expect higher aspects and greater progress. By such means does specialization justify itself.

It is equally true that the foundation for such growth must be the breadth of life.

The education of nurses and of all other women thus far in the world's history has not given them the foundation which should precede the special study. But from the present age has grown the opportunity for women to develop such comprehensive organization as shall bring about a new era in women's education. Its immediate bearing upon the education of the nurse is obvious, since the majority of nurses are women. The three great national bodies of nursing education which met for the first time this year at Atlantic City are an expression of this enlargement and quickening of mind, and I believe are an embodiment of the first essential to growth, the co-ordination or unifying of the differentiated parts of nursing work.

As the branch of the tree is supported by the body and draws its life from the earth, so the specialized branches of nursing grow from the complete body which is sustained by life itself, in natural beauty and order.

The standards for Infant Welfare Nurses are those measured for all public health nursing work from which the specialized work has sprung and for the hospital which is the training school of nursing education. No more can water rise above its level. The truth of what Miss Goodrich has written upon the subject impresses me with such conviction that I take the liberty of quoting her at some length. She says: "If we would keep pace with the educational movement we must keep closely in touch with the great educational systems and see to it that they contribute a just proportion of their riches to our important work. One of the heaviest assets is the knowledge born of long experience of the standardizing of schools and to them we should turn when we are considering establishing standards and the need of such standardization cannot be denied. . . .

"I believe the two most important factors in raising the standard of our profession are the quality of the pupil and the strength of the faculty. I will go further and say that since the quality of the pupil is in no small measure dependent upon the strength, mental, moral and numerical, of the faculty, that the most important factor in our professional progress is the faculty of our schools. . . . The strength of our schools of nursing has unquestionably lain in the drilling and in mastering of details through the practical work in the wards of the hospital. Must we not see to it that the preparation of our nurses lies in the hands of women of vision and must we not then go further and make it possible for them to obtain the necessary assistance from every standpoint

to efficiently carry on their schools? Says an authority on education in a recent report: 'The first essential in standardizing is to determine the standard and having done that, to place the enforcement of it in the hands of a competent body.' We have in a few states found the competent body. . . .

"But if we have found or are finding the logical bodies of control, are we not failing if we are not prepared to go to them and say, these are the standards which we as a national body, out of our experience, have determined upon as absolutely essential for schools whose graduates are charged with so great a responsibility as the public health? . . . I am not prepared to say that the principals of our schools shall be college graduates, but I am prepared to say that if the Teachers' College of Columbia University is demanding the completion of college for women preparing as teachers in the high schools, that we should not be willing to consider that a nurse whose preliminary education was limited to one year of the high school or an equivalent is educationally equipped to take charge of a school of nursing. I have not stated what the number, preparation or status of the faculty should be. I do not think these are questions for one woman to decide, but to be determined after careful study by a committee."

To summarize briefly in conclusion: the present training schools, special and general, may be organized to supply each other's deficiencies, that one may be the complement of the other:

That specialization justifies itself when its foundation is basic:

That the standards for Infant Welfare Nurses in common with the entire body shall be determined by a representative committee:

And that the highest standards may most efficiently be established for the entire nursing body by the co-ordination of its differentiated parts.

DISCUSSION

Professor M. Adelaide Nutting, New York: I am unprepared to discuss this paper except with a general endorsement of the proposition which Miss La Forge has brought forth. That proposition is that we should in some formal way at this meeting, if possible, give expression to our belief that training in the care of infants and children is a very uncertain and indefinite part of training school work at the present time; and it is of paramount importance, if nurses are to do such work well that they should be properly prepared. I don't

know what formal action this body may take. Perhaps after listening to the rest of the papers you may feel like passing up a resolution asking training schools to give greater attention to the training of nurses for this work. In every branch of nursing, training in the care of children is essential.

Miss Anna W. Kerr, New York: While I think we are all agreed that we must not fix our ideals too high, I think we *are* agreed that the training of the nurse at the present time is not just what it should be; and that our public health work should enter into her training. I think we should take up the subject of a post-graduate training school soon. Our nurses in New York are technically pretty well trained, as we have developed the social aspect of the work, and give four or five months to the training of these nurses for public health work. That does not seem to be fair to the city. The educators of New York have considered that subject. We hope in the near future they will establish a post-graduate training school in some large centre where half of the day can be devoted to field work and the other half to study in either the Teachers' College or some other place where it is practicable.

Miss Nutting: May I ask Miss Kerr, who is supervisor of the nurses in the Public Health Department of New York City, whether she thinks it would be practicable for nurses to have a half day of training in the Department and to have their theoretical work given elsewhere?

Miss Kerr: I think it might be worked out—half a day practical and half a day theoretical work for a short period of time to include all field and public health work, preventive work, etc. This is a very large field and requires a great deal of social training.

Miss Nutting: This points to a possible way for those women who have not time to spend a full year in post-graduate work.

The Chairman: This question is of paramount importance, and requires most careful consideration.

Miss Kerr: They are having a special course of lectures for supervising nurses in the Teachers' College and the School of Philanthropy in New York this year. The working nurses have a special course prepared for them aside from our departmental teaching.

Dr. Helen C. Putnam, Providence: The suggestion has been made that graduate nurses might receive special training in continuation schools, to become visiting nurses and for other specialties. I think if anything were to be done, next year would be the time for taking some action; because these are the years when continuation schools are being organized. It will be much easier to incorporate something into their curricula now than later, when they have become fossilized.

Mrs. William Lowell Putnam, Boston: Is there any one here to report on nursing in Massachusetts? In the Waltham Training School the nurses have a part of their regular training in the houses of the people of the neighborhood before they get their diploma. The Instructive District Nursing Association, of Boston, carries on a training school in district nursing for graduate nurses. My pre-natal nurse has been supervising the pre-natal work of this Association, teaching their pupils this branch of work.

The Chairman: I think there is a nine-months' course. Is there some one here from Boston who can answer that question?

Miss Fannie F. Clement, Washington: There are two courses in Boston in connection with the Instructive District Nursing Association; one a four-months' course under supervision of the Association, and the other an eight-months' course given in affiliation with the Boston School for Social Workers. The nurses give two-thirds of their time to the School for Social Workers and one-third for practical instruction to the District Nursing Association.

PRIVATE DUTY NURSES AND THEIR WORK IN HELPING TO PREVENT INFANT MORTALITY

MISS M. FRANCES ETCHBERGER, Baltimore, Md.

In this day of earnest seeking after the highest development of the human race, the opportunities to be found in the daily life and work of the private duty nurse cannot be overestimated. The realization of this brings to us the question of whether or not the general training of the average nurse entirely fits her for the important and necessary teaching in the home.

The nurse undoubtedly comes in contact with all classes of our population, and by the example she sets and the duties she performs, teaches directly and concretely the elements and principles involved in our fight against preventable diseases and afflictions of childhood.

The physician who decides to specialize in any field, studies along the particular lines selected, after finishing the general work of the medical schools. Why cannot the training schools give more attention in the same way to broadening the opportunities of the nurse for the very necessary baby work? True, she has her obstetrical training, but the baby is generally about two weeks old when it leaves her care. Sometimes she is fortunate enough to be connected with a hospital which has a children's ward, but too often she receives her diploma and is sent out on an unsuspecting public with less knowledge of vital things connected with the baby, than the mother, who will naturally depend upon her words as golden.

General education of the public in regard to the conservation of human life through baby welfare work (prenatal and postnatal) would constitute an economic force in the world's future. A movement which would fit all nurses to cooperate with the specialist in the fight against infant mortality would do more in a few years than has been accomplished in a generation, if properly and vigorously handled.

Personally, I trust the suggestion contained in the letter addressed by the Secretary of the New York Academy of Medicine to the American Nurses' Association will be successfully carried out, and a careful study of the various training

schools for nurses be made. Such an investigation will find the superintendents of the training schools aware of the deficiencies of the present system, as was evidenced by the plans outlined by Miss Nutting, and adopted by the National League of Nursing Education in 1911.

The first two points, I feel are the most important for me to touch on, viz:

- (a) "By each superintendent arranging in her own school for at least three lectures by experts on the causes and prevention of infant mortality, physical, social, industrial and economic."
- (b) "By securing for her pupils, at any effort, adequate instruction and experience in this important branch of work."

Nurses in Baltimore are most fortunate in having in their midst such important institutions as the Harriet Lane Hospital for Children and the Thomas Wilson Sanatorium for Children, where babies are sent during the summer months and which offers an unusual opportunity for studying and training along special baby lines.

Post graduate courses in baby welfare work, wherever possible, should also be encouraged and with special attention during at least a few months of her training, the private duty nurse would be sent from her school equipped to spread the gospel of the proper care of the child—the value of breast feeding—home modification of milk (if this is necessary),—a certain amount of knowledge of food values at all stages of child life, and the proper preventive work necessary to the development of the healthy boy and girl,—in this way living up to the important law "race preservation," which should be the "first law of nature."

At the present it is a deplorable fact that the children of the prince and the pauper are getting the best scientific care—the former, because of the ability to pay for the best medical attention of the specialist, who naturally surrounds himself with a staff of trained helpers,—the latter, because of the wonderful growth of public health nursing, which has so materially changed the conditions of our by-ways and alleys.

This leaves the great majority of the public, who need and feel they are getting the best help possible, when a graduate nurse is called to the home,—*and to fit that nurse to make this truly the condition, is our aim.*

The time has now passed when the consideration of the private duty nurse as an important element in the fight for race advancement (through the reduction of infant mortality,

and the spread of knowledge necessary to the growth of healthy children) seemed to be an ideal, the theory has now been worked out and the practical evolved. But the work must still be pushed, and the future will find the private duty nurse even a greater force for good in the near future than the past has known.

DISCUSSION

The Chairman: A resolution was passed by the Superintendents' Society when Miss Nutting was chairman of the committee, expressing the hope that the private duty nurse could render some assistance to the public health organizations. If there is any one present from any city in which the private duty nurse is working in close connection with the public health work, we would like to hear from her.

Miss Estelle L. Wheeler, Washington: I want to endorse everything Miss Etchberger has said about the need of more training for pupil nurses in infant work. The private duty nurse goes into many homes and is constantly being questioned by friends and patients about the care of infants; the nurse who has had little or no experience during her training is frequently embarrassed. I do not believe that successful private duty nurses have either the time or strength to do volunteer work in day nurseries, baby clinics, milk stations, etc., as has been suggested; this should be done while the nurse is still in training, then every nurse would have practical as well as theoretical knowledge of the care of infants.

Miss Minnie L. Ahrens, Chicago: In Chicago one training school has already made, as part of its curriculum for third-year pupils, arrangements to spend a month in some phase of this work. We have just had our first pupil from this school. She has been a month in our work, and when she finished, I said, "Will you do public health or private duty work?" She said, "Private duty, and what I have seen this month will make me do it from an entirely different point of view than if I had not had this training." Although she may not do public health work, the private duty nurse needs this training. Some schools also send social service nurses to visit the different lines of work in the cities; sometimes it is with a school nurse, sometimes with an infant welfare nurse.

Dr. S. Josephine Baker, of New York: I wish to say a word on the relation of the health boards and district nurses associations on the question of training nurses for public health

work during the time they are in training school. The training in the hospital includes what we might call the "laboratory" work of nursing, that is, the work at the bedside where the nurse receives practical instruction. As no series of lectures would fit a nurse for private duty, so no series of lectures will entirely fit her for public health nursing work. She must have some additional laboratory work in connection with her theoretical training in the hospital. This so-called "laboratory" or practical work can be furnished by boards of health and social service agencies and these latter should be used liberally. I am glad to endorse what Miss Kerr said. There is no reason why we who are doing public health work should not provide for you nurses all of the opportunities we can. In all lines of public health work in connection with the training schools for nurses the boards of health must serve for field work and during the time of their training the nurses should spend at least half a day for three months or more in outside practical instruction of this nature. I believe that Miss Nutting's suggestion should be very carefully followed and I move that the Chairman be empowered to appoint a committee of three to draw up resolutions calling the attention not only of the training schools, but of the health departments also to the need of preliminary training of nurses in public health work and asking them to urge such curricula in training schools that this training may be easily afforded to the nurses before they are graduated. Although a nurse may not go actively into public health work, she will in this way get a broad and general understanding of work of this nature and such an understanding will promote a close cooperation that must take place if we are to get the full measure in the reduction of infant mortality.

Seconded by Miss Nutting and unanimously carried.

The Chairman appointed as said committee: Miss Kerr, Miss Lent and Miss La Forge.

The Chairman: We all know that there should be more training. But I am sometimes sorry for the hospital superintendent who is always told how each line of work should be developed more. I wish Miss Nevins would tell us something about the difficulties of the Superintendents of Training Schools.

Miss Georgia M. Nevins, Washington: I agree with all that has been said, and I believe that the training schools are waking up to the fact that we must make every effort to estab-

lish special courses for those students who have fitness for public health nursing. Personally, I shall do all that I can in that direction.

Miss Nutting: Would a request of this kind sent to the boards or committees of training schools be of any substantial aid to superintendents? Or would it be more of a hindrance?

Miss Nevins: I have never suggested an improvement of any description to my board of directors that they were not more than willing to grant.

Miss Clement: I wish to speak of the need of training for the visiting nurse in a rural community with special reference to infant welfare work. Very few rural nurses do any prenatal visiting and in other respects what infant welfare work is done is not carried on as such or is at all systematic. Through an investigation of opportunities for the training of Red Cross visiting nurses we found a few of the visiting nursing associations cooperating with local boards of health in the training of public health nurses. The Visiting Nursing Association in Richmond, Va., is receiving most cordial cooperation from the local Board of Health. The recent four months' course established by Teachers' College and Henry Street Nurses' Settlement in preparation for Red Cross visiting nursing, includes affiliation with the New York City Board of Health. The nurses spend one month of the four working under supervision of this department, getting in touch with school visiting and infant welfare work. In addition to two months at Henry Street Settlement, nurses taking this course spend one month with the rural nurses in Northern Westchester District Nursing Association, New York. The University of Virginia is planning opportunities for nurses to prepare for public health nursing and courses are being considered in other sections of the country in connection with boards of health, colleges and other educational institutions.

Dr. Lilian Welsh, Baltimore: I have thought a great deal about the character of the instruction given in the Nurses' Training Schools in the subject of hygiene. These schools are, so far as I know, the only vocational schools in which the teaching is done by teachers not trained for teaching, that is by individuals who are only incidentally teachers. Then, too, the nurses in training are only incidentally students. They have neither time nor opportunity to do any real work upon

the subjects in which they receive didactic instruction. My work in teaching hygiene to college students has made me familiar with the text-books prepared for nurses in anatomy, physiology and hygiene, and they are all inadequate—at least, I have found none I could use in my own classes. Nurses certainly should have adequate courses in personal, community and racial hygiene based on a biological foundation, course well organized, and given by some person specially qualified to teach—and whose work is to teach and to do nothing else.

The Chairman: I think the nursing and health department of Teachers' College trains nurses for teaching.

Miss Nutting: There are now several teachers in our field who are prepared to teach elementary biology.

INFANT MORTALITY NURSING PROBLEMS IN RURAL COMMUNITIES

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The big field of study about infant mortality in rural communities of this country is yet so unexplored by nurses as well as others, that a paper dealing with problems of the rural nurse regarding this question must be restricted to the experiences and conclusions of the meager few the pioneers in country nursing. Little authorized investigation into living conditions in rural communities has as yet been made, so that definite statistics regarding infant mortality among this half of our population upon which definite conclusions could be based, are not yet available. The obligation of the rural nurse to infant welfare work in her community is evident, however, without this information at hand and she is trying to do her share in giving to country mothers some of the advantages those in the city with their easy access to hospitals, dispensaries, infant welfare stations and settlements, receive.

The country-bred woman, when she becomes a mother, is often handicapped in her care of the infant because of her environment, and the welfare of her child is affected by living conditions more or less peculiar to the country. Housing conditions, insanitary surroundings, and general mode of life in consideration of the temperament of country dwellers, and the usual absence of organized efforts in rural communities, creates for the rural nurse obstacles she finds difficult to combat, and which she meets frequently in localities where sick babies are her most serious problem.

So fundamental in the infant mortality question is the value and respect placed upon human life by the individual man or woman, that I should like to speak first of this and its relation to intentional miscarriages and self-induced abortions. It will be impossible to get very far in carrying out any constructive plan until it is more generally believed that procreation is a sacred attribute and the responsibility of developing a new life is a consecrated trust. One of the resolutions made at the English Speaking Conference on Infant Mortality, held last summer in London, was that stillbirths be registered. If at the

same time it could be learned whether or not these were accidental, I am led to believe that such statistics in many of our rural districts would disclose appalling conditions, and due to one of the same causes that lead to the death of older babies, a perverted sense of the obligations of motherhood.

The mother who does not want her child, and I do not refer to the already over-burdened mother, is apt to be the kind of woman who will not want to nurse it and devote her time to mothering. It will be a difficult task to change her views, perhaps, but to the young girls in the school and in their clubs who do not imbibe proper thoughts upon this subject at home, may be taught respect for their bodies, reverence for human life, and the importance of intelligent motherhood. One of the surest ways to prevent infant mortality is to school prospective mothers. An effort to do this is made by rural nurses, who hold classes in home nursing. In their contact with young girls they have a splendid opportunity to teach and discuss such subjects as concern the future mother and the infant, and these lessons will not soon be forgotten. In this work the influence of a rural nurse is great and far-reaching. One rural nurse has recommended the organization of physical culture clubs for the young people as a means of instructing them about their bodies. She organized the club, for which a special instructor was engaged. It created a tremendous interest and the mothers were so taken with the idea that they formed a mothers' club during the same year, and are going to have a class in physical culture for married women. The mothers in their club were told of the habits of children, the diets of infants, etc., and they found the talks of great help. This same rural nurse has met with boy scouts and the school children, to whom she has also given talks. It is so important, too, that the fathers of the future receive their teachings that are likewise so fundamental to the welfare of the next generation.

A nurse in a southern mountain community reports five miscarriages in one month in a village of fifty families. This same nurse, when she had been in her community about a month, was presented with some black snakeroot by a woman, who in the kindest way thought she was doing her a favor. She said all the young women used it. A nurse in another southern State, where she has been working for years, writes: "There are many miscarriages which are generally intentional. Means used are crude and dangerous, and after one or more, we find our women having alarming hemorrhages and then soon become invalids. Anyone trying to give an impression that there is

no race suicide in the mountains is poorly informed and there would be many more abortions if a way could be found. Money is offered for this purpose that would be grudgingly paid for a delivery."

Regarding miscarriages in a Massachusetts village, a nurse writes "They are tremendously frequent, especially so in the case of young girls, who resort to drastic methods in order to abort. Women who have children do this who feel they have enough to do caring for those they have. They confide their condition to some friend who very kindly tells them a means to prevent bearing the child. Doctors do what they can to stop this and I tell them the consequences of such things, but unfortunately, there is no decrease." A nurse from a far western State finds, as she says, "all too many miscarriages. The organizing of mothers meetings for young married women in some of our rural communities and special instruction in regard to the dangers of abortion seem to be an important step It seems fairly impossible to make a young woman realize the seriousness and danger of inducing miscarriage."

A report by the Public Health and Marine Hospital Service in 1912 on Sewage-Polluted Water Supplies in Relation to the Study of Infant Mortality was based on a study of cities, where it was stated that reduction in the general death rate is often due to reduced death rate from diarrhea and enteritis that depends on an improved water supply. There is no doubt but that considerable gastro-intestinal disease of children in rural areas, also is caused by bad water, where wells and streams are polluted. Such water is used in the milk, or given the baby to drink. Where such conditions exist, it means that the baby's milk bottles are never properly cleaned, as is frequently the case also, where there is no running water. Clothing washed in such water is brought in contact with the baby and becomes a source of danger.

Milk in so many farming communities may be obtained fresh once or twice a day, even though according to certain standards, it may be dangerous in other respects. The cost of milk in small villages is often so expensive that it becomes a luxury to poor families, who thus readily overlook the fact of its being a necessity. One rural nurse mentions that she finds milk very hard to obtain. Only a few cows are kept and the milk is sold to neighbors but the demand for good milk exceeds the supply.

The visiting nurse in many sections where midwives prevail is able to discourage the practice of these, but even this course

is not advisable where the doctors are untrained, and are the sort who employ midwives when their own babies are born. Some of the nurses write of the worst calamities happening to pregnant women because of these doctors. The best the nurse may do in such instances is to teach better methods and impress upon all men and women the importance of securing graduate physicians and the best ones to be had, at such times. A nurse in the southern highlands writes "The only attendant, often, is the father or a neighbor. The idea prevails that any woman who has given birth to a child knows enough to deliver a normal case, or, as the people say: 'Ketch the baby,' which explains their idea of the service needed at such times. After labor has commenced, they wait until the last moment before sending for the doctor or midwife, who, if important or officious, will often say, the baby is turned wrong and will manipulate the abdomen, knowing not a thing about anatomy or the position of the baby. In this way, mothers and infants are lost and yet such practices by the doctor are protected by law."

The practice of feeding babies everything they will eat seems to be general. Before any teeth appear, babies often get any solid foods they will take into their mouths, such as apple cores and cabbage, the mother often masticating the food before giving it to the baby. It may be a piece of salt pork, bacon or green cucumber to suck, and in some rural sections, many babies have been found playing with and sucking a dirty piece of plug tobacco. Beer, coffee and tea are frequently given. A rural nurse in a northern state writes: "The tendency to give solid foods is prevalent. I find it done in homes where you would naturally expect the mother to know better. For example, I had to attend a baby eight months old, having convulsions, and found that he had baked beans and coffee for supper. This child's mother had been a school teacher. Also, another case, a baby eleven months old, had had boiled ham, cabbage and apple pie for supper. When I spoke to the mother, she said he had had those same things many a time and they had not hurt him any."

When the baby is sick, the remedies used are sometimes tea made from fennell or other herbs, soothing syrups, cordials, vermifuges and whiskey. Paregoric and castoria are favorites. In many rural sections patent medicines are used extensively.

Few rural nurses are doing prenatal visiting. This branch of infant welfare work is one largely remaining to be developed by the rural nurse, and is one in which she may find the cooperation of the doctors most helpful.

Superstitions are rampant in many of our rural districts, but fortunately not all are affecting the health of the infant. Their existence is, however, an index to the general need of instruction as to what is right and best in the care and feeding of babies.

Nursing problems left untouched, such as the maternal nursing of infants, the overworked mother, and others, in many instances are regional. Those dealt with here are more or less common to rural nursing in general. The problems have been stated, but little space given as to how they are to be met. What the infant welfare workers are trying to do for the city largely answers this question. Already we find the milk station in the small community, an increasing number of competent physicians and nurses, who are equipped by training and experience to help save the country babies, by sharing in the improvement of general living conditions. More emphasis is being placed on rural hygiene better housing conditions, the sanitary privy, the proper disposal of garbage and more efficient health officers. These questions and more are being agitated in our rural districts, until some day, added to the advantages of the country over the city that already exist as a place for rearing children, there will be others that so vitally concern the mother and her child.

DISCUSSION

Mrs. E. R. Goodwin, Washington, D. C.: A good illustration of what the development of nursing in rural communities and small towns will do is available in the case of New Zealand, a country about the size of the State of Colorado, with a population comparable with that of Connecticut. The infant death rate in New Zealand has long been regarded as the lowest in the world, but the people were not satisfied and as the result of this dissatisfaction about five years ago a society was formed under the name of the Society for the Health of Women and Children. The country was districted with a committee in each district. Approximately seventy of these committees are now active. Specially trained nurses are employed and are called "Plunkett Nurses" in compliment to the wife of the Governor-General who was much interested in the work. The nurses act not as bedside nurses but as educators. Each nurse is supposed to work within a radius of fifty miles. Lectures on the care of babies are given and "living demonstrations" are considered an important feature of the work. The newspapers are extensively used to give publicity to the efforts of the society and publish regularly a column called

"Our Babies" column. It is acknowledged that the efforts of the society have resulted in a material reduction of the infant death rate. Take as an example the case of the town of Dunedin. In the seven years from 1900 to 1907 the average death rate among children under one year of age was eight per one hundred births. For the five years from 1907 to 1912 the average was six and one-half; for three years ending with 1912 the average was six; for the two years, five; and for the year 1912, four per one hundred births. The society is a private association, but it is subsidized and there is close supervision by the Public Health Department.

Question: I would like to know what means are usually taken by the rural nurse to get in touch with the needs in her particular community.

Miss Clement: Some rural nurses have the privilege of visiting the schools, either the county or local board of health or board of education having granted permission for this, in some instances appropriating an annual sum for such visiting. If the nurse is not allowed in the schools for regular visits, she finds other ways of learning to know the children in her community. She approaches them on the street, through various clubs and classes, and at various meetings, as those of the Boy Scouts or Campfire Girls.

Question: Is there a large percentage of women in the country nursing their babies?

Miss Clement: It would be difficult to make a general statement regarding this question. As far as we have been receiving reports, mothers in the southern highlands invariably nurse their babies. As to other sections, from some communities, the answer will be that all mothers nurse their babies, while in others mothers do not because they think it is not necessary that they should.

Question: How many nurses are there in rural districts?

Miss Clement: As far as recent investigations have shown, there are approximately between 100 and 150. Under the Red Cross there are fifteen in almost as many different states. In Virginia there are four. The number of public health nurses in rural communities, especially east of the Mississippi, is rapidly increasing.

The resolution just passed by this assembly will be of assistance to the Red Cross work. We need the nurse who has had training and experience in public health nursing. We have calls for nurses specially prepared for infant welfare work, or for industrial nursing, even from the smaller communities.

Mrs. William Lowell Putnam, Boston: The people of moderate means who cannot afford the services of a trained nurse need a trained attendant. Cannot our training schools for nurses perhaps also train attendants to meet this need?

Miss Georgia Nevins, Washington, D. C.: This is a question, it seems to me, that the training school is not yet prepared to take up. I would like to know the number of women applying for rural nursing. Does it not take a peculiarly gifted woman for that work?

Miss Clement: A considerable number of nurses have applied for the rural work. We have never been in a position to refuse a community who wanted a nurse, and we have been fortunate in getting nurses with considerable experience in public health nursing to accept these positions. I agree with Miss Nevins that it takes a woman of unusual ability and peculiar character to do rural nursing. It calls for a special type of woman. She should not feel that she is making a sacrifice, but must go to the country because she prefers to do so. It is a fact that the nurses who are in this work, as a rule, would not be happy to return to the city as visiting nurses.

Miss M. E. Lent, Baltimore: The Visiting Nurse Association of Baltimore has at present eight nurses in the counties of Maryland. Up to this time, it has been very difficult to get nurses willing to isolate themselves from everything in the way of medical and professional companionship. However, we feel that the time is near at hand when the importance of the nurse's work will be better understood by the country people themselves, and the improved condition of transportation will make it possible for her to take advantage of social work and lectures in the near-by towns and cities, whereby she can get advice and assistance that will fit her to meet the demands of the people. She will feel that she is not cut off from opportunities for development in her profession, and I believe we shall then not have much difficulty in getting good women to do this work.

Dr. T. Wood Clarke, Utica, N. Y.: In the development of this rural nursing successfully it will be necessary to go back to the training schools from which probably rural nurses get their education. The nurse who will make the greatest success in rural nursing is the native of the rural community who understands the life and the people. Such girls, when desirous of becoming nurses, usually go to the hospitals in the smaller cities. These are generally small institutions, having from twenty to forty nurses, conducted chiefly for surgical purposes and usually completely dominated by the visiting surgeon. In such hospitals the pediatric training generally consists in a few didactic lectures, and the nurse graduating therefrom hardly knows how to pick a baby up. If under pressure from the State authorities a children's ward is put in, a charge of from nine to fifteen dollars a week is made for treatment, with the result that the beds are filled with tonsilectomy and orthopedic cases, as the mother who can afford to pay that amount for care of her baby suffering from a medical disease will have a nurse and will care for the baby at home. In order to obtain decently adequate training in the care of children in a hospital it is essential to have a properly equipped children's ward, with free beds. The necessity of having the ward so endowed is a matter which must be most forcibly impressed upon the minds of the hospital managers. Pay beds are utterly worthless in training nurses in the care of babies. Until free children's beds are placed in the small hospitals, rural nursing will have to work against a great handicap.

Mrs. William Lowell Putnam, Boston: The Robert Brigham Hospital, in Boston, is undertaking to train attendants, but this work is only about to begin, for the hospital is not yet open.

Miss Lent: I do not feel that training schools can undertake the training of caretakers and attendants, but I do feel that at present the State Associations of Graduate Nurses will have to take this matter up. In Maryland last year, we organized classes in simple home nursing, hygiene, and sanitation, with demonstrations, for over sixty women wanting the course.

They are in no sense to take the place of trained nurses, but we find them absolutely necessary in the homes where simple care of chronic cases and relief, as well as some domestic service is needed. The visiting nurses can supervise their

work in the homes of the poor and carry out important treatments, etc., for which the attendants are not equipped.

Our greatest difficulty with them is to arouse a sense of responsibility to the nurse who is supervising them, or to the people for whom they are working. Their lack of training makes them inaccurate and careless about hours and carrying out directions. We had hoped to work out an arrangement with the Home for Incurables, where young country women who are not educationally equipped for training schools, could have a course of eighteen months or so under the direction of trained nurses. At the end of that time, they would be given certificates as trained attendants. So far, we have not been able to accomplish this.

The superintendents of training schools would be extremely helpful in working out this plan. Of course, we all realize that the lay people's point of view is most valuable. I, for one, feel strongly that when a group of professional people get together, they are apt to be a little narrow.

Miss Ahrens: Have you thought anything about training attendants in connection with your Central Directory?

Miss Lent: The Central Directory of Maryland is under the direction of the State Association of Graduate Nurses. It was from this directory that the classes that I spoke of were carried on last year. It was due to the enormous demand for caretakers and attendants from the people of Baltimore, including physicians and trained nurses, that we were obliged to take on our list these untrained women, and for that reason we feel that the graduate nurses should be responsible for and help to make these attendants of more value and assistance to the community by the lectures, classes and demonstrations which were given them.

Graduate nurses all over the State have called for these attendants to help out with their cases. Therefore, as they have acknowledged the need for them, they should be ready to help in the development of this piece of work.

Mrs. William Lowell Putnam: In the Household Nursing Association (which is a Committee of the Women's Municipal League of Boston) we have an advisory committee of hospital superintendents, private physicians, directors of training schools and others. We have three grades of workers, the trained nurse, the trained attendant and the household helper. As the work grows we establish new branches, but always

under the supervision of a trained nurse who is responsible for every employe whether it be a trained nurse attending a case of pneumonia or typhoid fever, a trained attendant or a household helper. The trained nurse puts the right person in the right house. We have done this for about a year, and we are anxious to get in touch with managers of large concerns to undertake the care of their employes for them. This is in no sense a charity. All work must be paid for.

Rev. T. Hunter Boyd, Glasgow Scotland: I joined this Association four years ago as a Canadian pastor. The people who are going to survive will be the people who live biologically. This is my experience of ten years in a remote rural district. While you are waiting to get this curriculum, such a thing as the mothers' course arranged by the Department of Home Economics at the New York State College of Agriculture, at Ithaca, on household hygiene, makes a good groundwork and an easy point of departure for some of these matters. Appeal must be made to these people through existing agencies, often through the rural pastor and his wife, and in ways that have no bearing on local needs. Avoid awakening the bitter opposition that has been aroused by some scientific workers who have been sent out to tell people how to do things.

The Chairman: I will ask Miss La Forge to summarize our thought.

Miss La Forge: The discussion is no doubt crystallized in the appointment of the committee whose function is to assist in standardizing the training of the public health nurse.

SESSION ON PEDIATRICS

Friday, November 14, 1913, 3.30 P. M.

COMMITTEE

CHAIRMAN

DR. HENRY F. HELMHOLZ, Chicago
DR. F. W. SCHLUTZ, Minneapolis
DR. HENRY L. K. SHAW, Albany
DR. J. W. SCHERESCHEWSKY, Washington
DR. EDWIN H. SCHORER, Kansas City

STATEMENT BY THE CHAIRMAN:

Following out the plan outlined by Dr. Gerstenberger last year, it has seemed advisable to take up at this meeting a number of neglected subjects that are of very vital importance to the development of the medical side of the campaign against high infant mortality.

Much can be done by the workers, who are actually doing the work in infant welfare stations, to show the laity how successfully babies can be fed on the very simplest of food mixtures, but there are many physicians and laymen, who still consider that infant feeding is so difficult that it is best left to the mother, the nurse or the dealer in proprietary foods. To show how much can be accomplished by the simplest means, one of the papers will cover this subject.

The hygiene of infancy is a much-neglected field and one that needs considerable revision. Until we have a large group of teachers, however, it is rather difficult to enlighten the community. The teaching of the hygiene of infancy should be a requirement in all medical schools.

Last year in the joint meeting of the Housing and Nursing sections several papers were presented on the effect of heat in infant mortality. These papers all represented work done during the summer of 1912. The subject of the relationship of heat to infant mortality is of such vital importance to the development of more efficient work during the summer months that it was decided to have the one referat of the meeting on this very important subject.

SIMPLE MILK DILUTION FEEDING

HERMAN SCHWARZ, M. D., New York

It seems a curious thing that in medicine, as in various other branches of learning, when something new is proposed, not necessarily meant to supplant, but only to add to the known, the old is gradually discarded and the new used exclusively. It has always seemed to me that if one of us were to search through the old literature he would find many excellent facts which are absolutely trustworthy, but have gradually been forgotten. This has been especially evident in infant feeding. From time immemorial up to, but not including the present time, children have been fed upon simple mixtures of milk, water and sugar. Then the use of top milk was introduced, erroneously thought by many to be the essence of percentage feeding; the calculation by means of calories was added to our knowledge by Reubner, Heubner and Hoffman, and lo and behold, ordinary milk and water with sugar was entirely forgotten. As I understand it from our chairman, the main object of this paper is to make a plea for the use of this ordinary milk, water and sugar feeding, for it certainly could not be that I had to prove that many children could be brought up on these simple dilutions of milk. The social status of the infants whom we have to feed may be divided into those seen in private practice, presumably of the wealthier classes, those in our institutions, and out-patient departments.

Fortunately, this age is a great leveller and to a great extent these two classes may be fed alike. I bring this up because it makes me feel sorry for many of my patients in private practice who have to go through elaborate procedures consuming a great deal of time and trouble to prepare their milk mixtures. The mothers, who are usually young and inexperienced, puzzle and fret about the three ounces from the top of one, and one ounce from the top of the other, and five ounces from the top of the third, a bottle of milk added to a certain amount of barley and limewater presumably to make up

a certain fat percentage that is supposed to be the only thing that the child will thrive on. Mind you, I do not say nor do I wish to be quoted as saying that I do not believe in top milks in some cases, but I would like to emphasize the fact that it is only fair to the mother, and in many cases to the child, to try first the ordinary milk dilutions with the addition of sugar calorically sufficient.

Now, as regards our institutional classes and dispensary cases. Here it is still more important not to make the feeding of infants a terrifically difficult problem with the use of a great deal of mathematics and apparatus. The addition of limewater and of barley, unless indicated, the use of other sugars besides the ordinary granulated or milk sugar is also to be deprecated. The indiscriminate use of the malted sugars and infant foods is in many instances unnecessary, adding to the trouble of making the food, to the expense and to the time consumed in preparing the same. In other words, unless there is some indication one should try the ordinary dilutions of milk, water and sugar in the greater percentage of our institutional patients. This plays a great role in our problem of infant mortality. Simplicity and efficiency is the keynote. Properly used, or even improperly used, they are less liable to be dangerous than many of the cream mixtures and patent foods. Nothing in infant feeding has seemed to me more wasteful of time, energy and expense than the prescribing of elaborate mixtures for purposes of weaning. In most instances the simple dilutions with their relatively low fat and high proteid content, are especially indicated and easily controlled. In supplemental feeding also, without definite knowledge of the amount of fat the infant is likely to receive from its mother's milk, it is especially safe to give the ordinary dilutions of milk and water.

I shall now proceed to tell you some of the results which we have obtained both in private practice and in our institutional work by use of such simple dilutions. I have been fortunate to be able to report to you the results in following up thirty-six hundred children for the period of a year. Many of these children are breast-fed until the eighth, ninth and tenth month, some have had to have milk mixtures added to or replaced entirely at a much earlier period. When the addition of cow's milk was indicated the ordinary dilution of milk, boiled water and granulated sugar was almost always used.

Of 1,182 infants thus fed and observed for a year the average weight at the end of the year was 19 pounds and 14 ounces:

TABLE I

45 infants or, 3.7 per cent, weighed 13 to 15 pounds						
129	"	"	10.8	"	"	15 to 17 "
116	"	"	9.8	"	"	17 to 18 "
197	"	"	16.6	"	"	18 to 19 "
185	"	"	15.6	"	"	19 to 20 "
173	"	"	14.5	"	"	20 to 21 "
143	"	"	12.0	"	"	21 to 22 "
97	"	"	8.2	"	"	22 to 23 "
40	"	"	3.4	"	"	23 to 24 "
57	"	"	5.0	"	"	24 to 29 "
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From Table I you will see that the greater number of our infants were over 18 pounds (approximately 75 per cent). And this in a material whose care could not absolutely be controlled and whose resistance to diseases was so lowered that a great many illnesses kept the weight back. Most of these cases received additional nourishment to the ordinary milk mixtures before the ninth month.

In Table II, I should like to call your attention to 160 bottle babies artificially fed from birth out of 3,600 clinic cases (4½ per cent).

TABLE II

Average weight 8 ½ pounds at one month					
"	"	12	"	"	three months
"	"	16.3	"	"	six months
"	"	17.2	"	"	nine months
"	"	20.8	"	"	twelve months

These do not include infants with abnormally low birth weight, premature or twins.

From the above it will be seen what results it is possible to achieve with these simple dilutions and gives us time to concentrate upon the cases that really need it for use of mixtures such as top milk, malt soup and Eiweiss milk. Similar or even better results are obtained on these simple mixtures in private practice.

DISCUSSION

Dr. Godfrey R. Pisek, New York: I interpret this paper as showing the tendency of today toward simplicity in infant feeding. Dr. Schwarz has lost sight of, or at least has not emphasized, one feature which makes the simplified dilution of water and milk and sugar successful today. If ten or fifteen years ago we had tried simple milk and water dilution, we would not have had the same good results, for now it is possible to obtain wholesome milk in the majority of localities. Top milk mixtures were an improvement because doctors insisted upon good certified milk in order to get their top milks. Today we get good results with whole milk mixtures because bottled milk is more universally used. In feeding a large number of infants as in the milk stations of New York City, one year we tried pasteurized milk at some stations and raw milk at others. At the end of the year there was not much difference to be noted in our results, the instruction given being the same. The milk was handled under the direction of the nurses in the homes. The next year a good raw milk alone was used, and these simple modifications were efficacious and the records show that we had good results. Simple dilutions will answer the purpose of the average normal child; but it should not be forgotten that in special cases we must adapt the modification to the particular needs of the child.

Dr. L. Emmett Holt, New York: Early and continuous observation is the secret of success. Good results can be secured by many different methods if only the children report regularly once a week, and are kept under constant observation. The difficulty is to secure regular attendance.

Dr. Julius Levy, Newark: I think Dr. Schwarz's paper is of immense social value, because the average mother can be taught this system of feeding at home. This saves an immense amount of work and money for the doctors, nurses and philanthropists; but best of all it puts into the home the educational value of preparing the milk. When you have taught the mother that, you have taught her all of personal cleanliness and infant cleanliness. I think this association will do an immense amount of good if it spreads the propaganda of simple milk modification among the doctors as well as among the mothers. The idea of feeding a child scientifically has been associated with a very elaborate knowledge of calories and percentages. If we can let every one know that simple milk modification will meet the average case, we shall have accomplished a great end.

The Chairman: A great deal can be accomplished by simple methods if they are rightly used. Dr. Holt advocated simple methods from the very beginning; but simple methods may not help out if we have an infant that has had all sorts of mixtures fed to it before it came into our care. In our work in cities where thousands of babies have to be fed, we must have some simple procedure that can be taught the mother, and the simpler, the greater the chance of success.

Mr. A. S. Trundle, Washington, D. C.: I would like to know to what extent condensed and powdered milks are being used for infant feeding in the country at large. Some years ago, in 1903, I had occasion to call the attention of the local health department to this subject, and made a request for an investigation, which gave the following results:

FOOD SUPPLY OF 252 INFANTS WHO DIED FROM DIARRHEAL DISEASES
BETWEEN JUNE 6 AND OCTOBER 10, 1903 (WASHINGTON, D. C.)

Character of Food	No.	Per cent
Breast fed	29	11.51
<i>Artificially fed</i>		
Cow's milk (liquid).....	94	37.30
Condensed milk	110	43.65
Proprietary food	5	1.98
Broths and soups	1	.40
Mixed feeding	13	5.16
Total	252	100

Notwithstanding this report (Annual Health Office, D. C., ending June 30, 1904), I find mention of the analysis of but two samples of condensed milk in later reports (page 65, H. O., ending June 30, 1912), though from five to seven thousand samples of liquid milk were analyzed annually. I should like some of the odium that has been so constantly levelled at the milk and milk producers, to be removed and placed where it so clearly, to my mind, belongs, on the preparations that are used in the place of milk and to the manner and circumstances under which they are administered.

TEACHING OF HYGIENE AND ITS RELATION TO THE PREVENTION OF INFANT MORTALITY

I. A. ABT, M. D., Chicago

As our experience has broadened and as the world-wide interest has deepened in the study of infant morbidity and mortality, it has been found that the causal factors are numerous and varied. Without going into detail concerning the plans of investigation which have been pursued to bring to light the evils which cause a high sick-rate and a high death-rate, I desire to call attention to the possibilities which present themselves to the medical profession in waging a more effective warfare.

How can the medical profession yield more efficient service in the prevention of infant mortality? Are our under-graduate and post-graduate medical schools contributing their share in instructing students in infant hygiene? Are infant hospitals, medical societies and other institutions of instruction and learning contributing their share in the propaganda of prevention?

It has seemed to me at times that our energy in this campaign of prevention has been somewhat misdirected. It is true that in opening a field so vast and so important many avenues of attack must be attempted. The feeding problem, the housing conditions, the prenatal influences, and many others required study and plans for solution.

It was unavoidable that some errors should have occurred. It is far from my purpose to discredit the valuable contributions and the vast progress that has been made. I cannot fail to recognize the far-reaching effects on the reduction of infant mortality from the infant welfare stations and the efficient service rendered by physicians and nurses in educating mothers and saving infantile life. Nor would I discredit the campaign of education which has extended into many homes and brought light and relief into many dark places.

Every specialist in the treatment of infants' diseases comes in contact with patients in hospitals and dispensaries, as well as in private practice, where the babies show lack of

hygienic care, or such deviations from physiological living that disease seems inevitable and normal development impossible.

If we will take the pains to visit the registrar of vital statistics during a hot day in mid-summer and look over with him the certificates of deaths, we will find that the majority of the certificates record the deaths of young infants, and if we will read the names and locate the homes, we will find that the little victims are—in the vast majority of cases—of foreign birth and from the poorer quarters of the city.

Those of us who know the condition of these children during their lives, know that the hygienic conditions which led up to the sickness were bad, and the treatment during the illness was frequently inefficient and sometimes irrational. I need refer only to the vast army of sick babies that succumb to improper food or excessive food on the one hand or starvation on the other; or those who are excessively physicked, or possibly those who are weaned on medical advice because the breast milk was supposed to be too rich or too poor.

During the early days of the infant welfare movement in my own city, I attended a meeting in the City Hall, where physicians from all parts of the municipality had come together in mass meeting to protest against the infantile slaughter. Men of every rank came, and, we may assume, prompted by every human motive. The discussion hinged upon the shocking sick-rate and high death-rate, and the medical men declared themselves as to the cause of the condition and the best methods of prevention. Many words of wisdom were spoken, but much more was said that reflected the inefficiency and the inadequacy of medical knowledge pertaining to infantile pathology and therapeutics.

As I sat and pondered, and listened to the speakers at this mass meeting, to those who were ready to buckle on the armor and unsheath the weapons with which they were going abroad in the highways and the byways and the dark places to wage holy warfare and to crusade against the demon of disease and death and to educate the masses, I could not help repeating again and again the refrain: *"If you, my brethren, will educate the masses, who will educate the educators?"*

DISEASES WHICH LEAD TO INFANT MORTALITY

If one looks over the mortality statistics among infants during the first two or three years of life, it becomes evident at a glance that the highest mortality is due to gastro-intestinal diseases, respiratory diseases, convulsions, whooping

cough, measles, and sepsis among the new-born. Tuberculosis plays some role in infantile mortality even during the first years of life, though the occurrence of this disease is by far more frequent in densely over-populated cities than in the rural districts.

The accidents of birth furnish a small quota of infantile deaths. Septic infections of the new-born still brings an appreciable number to the sacrifice. We observe septic infections not only in private practice and among the poorer classes, but also in hospitals of every degree. The two latter groups must be considered under the class of preventable diseases. That death occasionally occurs as an untoward accident in spite of great care is undeniable. That it frequently occurs because of insufficient knowledge or care must be conceded by everyone who is acquainted with the conditions.

STUDY OF NORMAL STANDARDS

Very brief references may be made in this connection to the necessity of teaching the normal physiological standards of infantile weight, measurements, length, the rate of growth, and those elementary facts in the physiology and development of infants upon which a better understanding of errors in growth and morbid processes depend.

STUDIES IN HYGIENE

The number of booklets on the care and hygiene of the baby is almost beyond calculation. They are for the most part elementary in character and intended for the laity, and as a rule are not sufficiently detailed in nature for the instruction of physicians and medical students. In some medical schools, students learn what little they know about hygiene of infants from the teacher of obstetrics; and in a few schools the subject is taught by the department of pediatrics. I make bold to say that in most schools the subject is taught indifferently, if at all. I desire to take the position now that the subject of infantile hygiene should be taught in the department of pediatrics. It is my opinion that it should be a part of the third year work. It should be a recitation course, and the instruction should be given by one who is more than a mere tyro in the department of children's diseases. The instruction should be based upon physiological knowledge, also utilizing such facts in clinical pediatrics, in bacteriology and pathology as pertain to the hygiene of infancy.

It is far from my purpose to enter into a discussion of the elementary facts concerning the hygiene of infancy. There is much to be learned at the bedside and in the department of research concerning methods of procedure, and I believe I am not in error when I say that some of our teaching and practice in infantile hygiene is subject to extensive revision. Nevertheless, there are well-grounded facts which may be considered fundamental and proved, and which may be accepted in practice.

To enumerate very briefly, the course in infant hygiene should consider the care of the infant during the first days of life; the necessity for external warmth. The prevention of infection in newly-born infants is a theme worthy of careful study. The low resistance of the newly-born infant makes infections possible. His anti-bodies are poorly developed; he combats septic processes feebly and succumbs readily.

The technique of the bath, its temperature, the warmth of the room and all other facts concerning its application are as important from the physicians' standpoint as from that of midwife, nurse or mother. The treatment of the cord, the umbilical wound, the clothing, should be considered in detail because they are matters of vital importance, simple when understood, serious or frequently fatal when misunderstood. The hygiene of food or feeding, the physiology of foods, the advantages of breast feeding, are all considered in the larger text-books on pediatrics and are easily accessible to every student.

Air and exercise, the bathing of older children, the training of children, prevention of infections, and countless subjects and questions will come up for consideration, and should be treated in the greatest detail, because, after all, if medical schools are educating men for general practice, these various problems in infantile hygiene which require daily application among normal and sick children are of the most far-reaching importance. Indeed, one may go further and say that adequate training of young physicians in infantile hygiene would be one of the most powerful forces in combating infantile disease and mortality.

REACHING THE PRACTITIONERS

Medicine is subject to continuous changes. At times progress is swift. During the past twenty-five years a complete revolution in medical knowledge has occurred. Physicians are prepared, as a rule, for new teachings, though they must

be presented in popular or assimilable form. The general practitioner is confronted with almost insurmountable difficulty. If he is to keep abreast of the progress in all branches of medicine he will require an energy and industry that is almost superhuman. For this reason it is important that the latest knowledge, from clinic and laboratory, should be presented in concise and somewhat popular form. To this end, centers of medical learning should redouble their efforts.

A great organization like this society should be the stimulus not only for the teaching of infantile hygiene in undergraduate medical schools, but also for instruction to graduates in medicine. The children's hospital should be a Mecca to which practitioners should pilgrimage. Popular lectures should be delivered at these hospitals as well as at under-graduate and post-graduate schools. Addresses should be delivered by competent physicians before district and county medical societies, so that the general practitioner of medicine might come into possession of the latest and most accepted methods of pediatric practice and particularly those facts which pertain to the hygiene and prevention of disease among infants.

DISCUSSION

Dr. J. H. Mason Knox, Jr., of Baltimore: This is a very concise and sensible presentation of the importance of teaching elementary hygiene. Our medical schools give it much less attention in their curricula than it deserves. Most of us who are engaged in milk station work and in seeing many children of the working classes, realize that a large part of our work is made necessary simply because of the absence of the things which Dr. Abt has advocated. Some of us look upon this crusade as pointing to the time when this knowledge of the hygiene of infancy will be more general. This knowledge of the elements of infant hygiene should be a part of all teaching of older girls in high schools and colleges. I look forward to the time when no American girl shall graduate from a reputable high school or college, with a prospect of marrying and having children and entering into that sacred relationship, without this elemental knowledge of the care of her offspring. I believe thoroughly that it is a legitimate part of every course of normal education. Until we do have every American girl and every foreign girl naturalized in this country possessed of this knowledge, we must continue in this unsatisfactory way of propaganda by societies of this kind, and by the very dis-

couraging attempts on part of nurses and doctors to tell mothers who are beyond the age of learning easily, what mistakes they have already made in the care and feeding of their children.

Dr. Helen C. Putnam, Providence: There is a large class excluded from Dr. Knox's remarks. He speaks of the graduates from high schools and colleges, who are only a small fraction of all the girls in the country. This society stands consistently and strongly for educating the great mass of girls who have no education at all during adolescence because their parents do not care to have them go on. This society stands for educating them in continuation schools under the regular school department of the country. One of the greatest things we can do in this society toward the prevention of infant mortality is to have these continuation schools—voluntary or compulsory—establish in every city in the country classes for teaching girls who are past the elementary school education how to take care of their children. We can go a step farther and require not only health certificates for marriage, but certificates from father and mother of ability to care for a family.

A Member: I should like to go a step farther even than the last speaker and suggest that the time to teach girls the care of children is in the seventh and eighth grade grammar schools. Many of these girls are already taking care of their little brothers and sisters, and it is a question whether they take care of them well or ill. At this age they are old enough to acquire information which they can put to good use when they become mothers.

Dr. S. Josephine Baker, of New York: This work is being done largely throughout the country by the health boards, or by private organizations in instances where the public authorities have not taken it up systematically. The time to teach girls the care of babies is when they are in the elementary schools and not to wait until the high school or college age is reached. In New York we have our Little Mothers' Leagues of girls from twelve to fourteen years of age who are taught by lectures and practical demonstrations the principles of baby care. Last year we had about 17,000 of these girls in our leagues and the attendance is entirely voluntary. There can be no question that at that age the information is more easily absorbed; the children take it in without any self-consciousness. They learn it as they do any other study and it stays

with them for the rest of their lives. We have girls as young as ten years who are anxious to join our leagues. I believe that boards of education should take up this training of girls for motherhood as part of the public school course, and I believe, as people interested in the welfare of infants, we should make it our business to conduct a campaign of education among the educators themselves and lead them to see the importance of the early training of young girls in infant care. We can do nothing more important for the women of the future than to teach them how to keep alive and well the children they will bring into the world.

Question: I would ask Dr. Baker if she has had any trouble from the Catholic Church, any objection?

Dr. Baker: Not at all.

Miss Marlatt: It seems to me this is wandering into the discussion that we will have on Saturday evening in the session on Continuation Schools. When we train a girl who is from twelve to fourteen years old to take entire charge of the younger children, I think we are putting too much responsibility on her. The average girl of that age is not fit to take care of a small child. She is not physically strong enough, and her judgment is too immature. To teach her how to take care of herself is all right, but to take care of other children is going too far.

Dr. Baker: I agree with the former speaker that children twelve to fourteen years of age should not be expected to take care of babies. But they do take care of babies, and it is a question of whether those babies shall be taken care of comfortably and decently or otherwise. John Spargo says that the little mother is one of the greatest causes of infant mortality. But if they must do it, we should teach them in such a way that they can do it properly.

Dr. T. Wood Clarke, Utica, N. Y.: In educating the "Little Mothers" to take care of their little brothers and sisters, Dr. Baker is also educating them to take care of their own children a few years later. She is starting in at the right place, and is also getting to the mothers of the present day information how to take care of their children. There is no better way to reach the foreign mother than through her own children,

because the majority of the foreign mothers do not speak English and their children do. So this is much more than just educating the little mothers, and I think this work is most important.

Miss Harriet E. Leete, Cleveland: Our girls are being taught by the school nurses in Cleveland. This work has been taken up by the Babies' Dispensary after school hours. Children like it very much. This year it will come under the direction of the Board of Education.

HEAT AND INFANT MORTALITY

By J. W. SCHERESCHEWSKY, Surgeon U. S. Public Health Service,
Hygienic Laboratory, Washington, D. C.

By far the most conspicuous phenomenon in connection with the mortality of infants is the well known increase in the number of their deaths, which takes place in the summer months. No incidence of death in any other age group seems to be so immediately determined by meteorological conditions.

Hot summers produce an abnormally high infant death rate and cool summers the reverse. For instance, Kruse ⁽³⁰⁾ points out that the infant death rate in German cities of over 15,000 inhabitants decreased from 190 in 1901 to 153 in 1910, a cool year. Yet, the universally hot summer (in Europe) of 1911, was accompanied with a great rise in the infant mortality, so that the infant death rate in these cities for that year was 187, a rate not surpassed by any year subsequent to 1901.

Again, Liefman and Lindemann ⁽³⁸⁾ state that the total number of infants dying in Berlin in July and August, 1910, was 1,439, while, in the same months of 1911, 2,050 died, an excess of 611.

The relation of heat to the summer deaths of infants has naturally been the subject of much statistical inquiry. Forty years ago, no doubt existed, in this country, at least, as to the direct effect of heat in causing increased infant mortality in the summer. The discoveries and developments in bacteriology and the etiology of infectious diseases, however, gradually displaced heat into the background as a direct factor in the deaths of infants, during the summer time. Until a few years ago the general opinion has prevailed, while summer heat stood in causal relation to summer deaths, that this relation was, by no means, immediate. Heat was regarded as an agent calling other deleterious influences into action.

Recent observations, however, particularly those in Germany of Finkelstein ⁽⁹⁾, Rietschel ^(54, 55, 56, 57), Liefmann and Lindemann ^(27, 38), Klose ⁽²⁸⁾, Kathe ⁽²⁵⁾, and others have reopened the question. We must now ask ourselves if summer heat is not, after all, by its direct action, the determinant of a large part of the summer mortality of infants.

It is to be regretted that the recent careful studies which have been undertaken abroad have not been duplicated to any great extent in this country and that it has been necessary to derive most of the material for this paper from foreign sources.

It has naturally been found impossible, within the limits of this article to give complete treatment to the subject, but an endeavor has been made to summarize the more important observations.

RELATION OF THE SUMMER MORTALITY OF INFANTS TO THE TEMPERATURE CURVE

In the past, numerous comparisons have been made, and many charts published, showing the relation of temperature to infant deaths. Owing to the great prevalence, in the summer, of deaths from intestinal diseases in babies, such curves have dealt mainly with the relation of temperature to deaths from this cause. Moreover, the *mean* temperatures for weekly or monthly periods have been the values taken with which to compare the infant deaths occurring in like periods.

The resulting curves are of a type familiar to us all. As an example, let us look at Chart I from Fuerst. This chart shows the monthly deaths of infants from gastro-intestinal diseases in Munich from 1895 to 1904, as compared with the mean monthly temperatures.

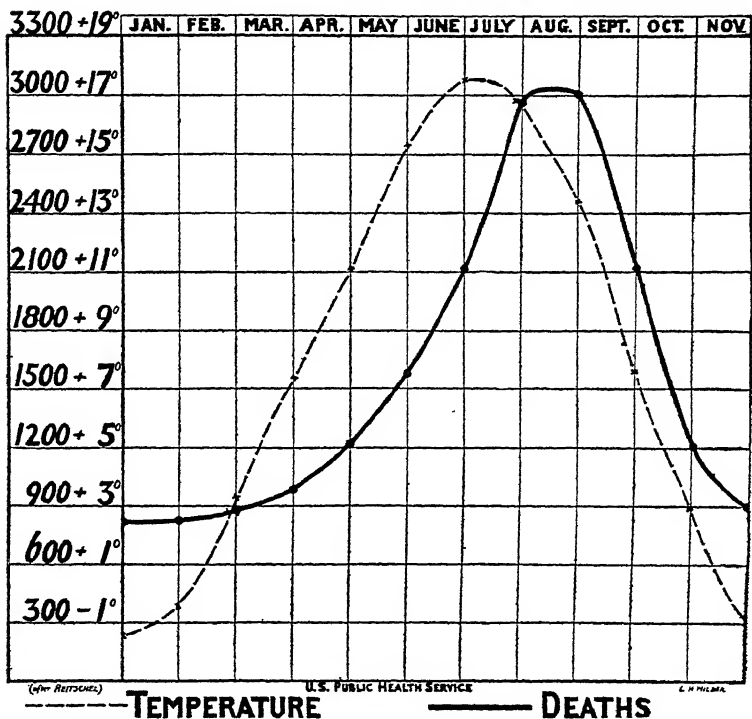
It will be seen that the death curve lags behind the temperature curve, rising steeply to its apex in August and declining at a later period than the temperature curve, to reach the winter norm in December.

It has been pointed out by Miller (⁴³) in this country, so far back as 1879, that we cannot make reliable deductions from comparisons of this character. If we wish to study the direct effect, if any, of heat upon infant mortality, we must compare the daily deaths with the daily temperatures. More recently this was pointed out by Prausnitz (⁵²), Finkelstein, Willim (⁶³), Liefmann and Lindemann and others. Wilim and Finkelstein seem to have been the first to publish such curves, but the most careful study of this nature in recent literature is that of Liefmann and Lindemann,¹ which deals with the relations of heat to infant mortality in Berlin for a period of 15 years.

NOTE 1. (A careful study of Liefmann and Lindemann's work is recommended, as well as of Rietschel's comprehensive monograph on this subject. I am indebted to these authors for much of my material.)

CHART I

MONTHLY INFANT DEATHS FROM INTESTINAL DISEASES IN MUNICH, 1895-1904, COMPARED WITH MEAN MONTHLY TEMPERATURE

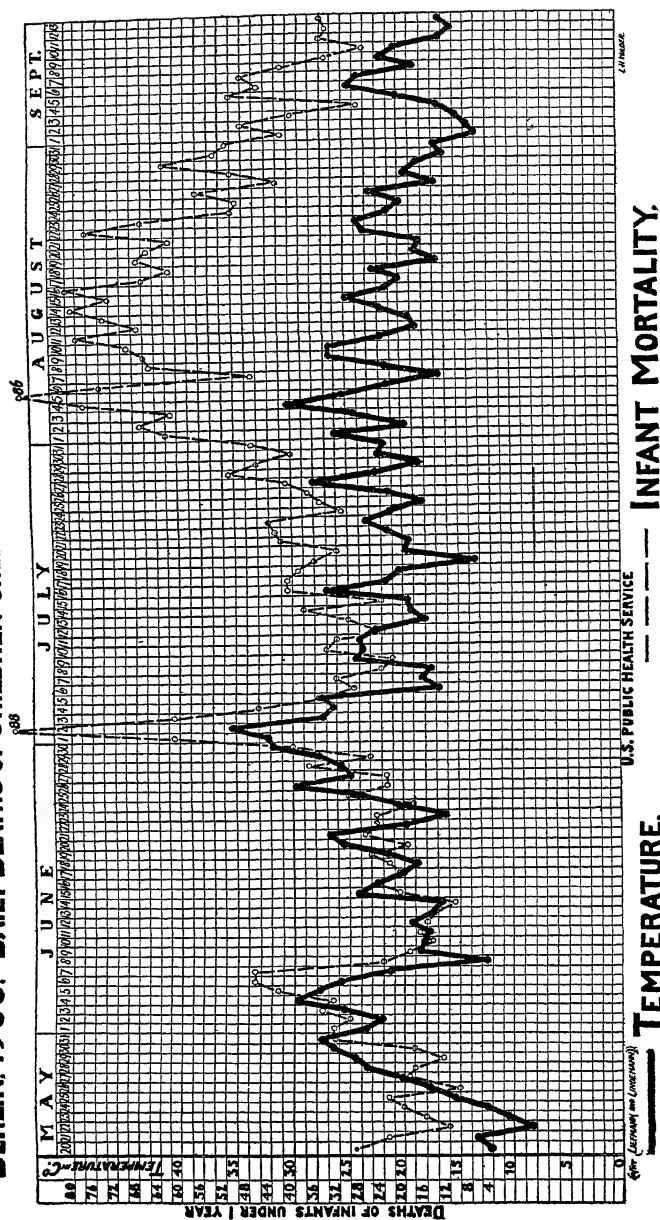


Let us now examine one of Liefmann and Lindemann's charts (Chart II) which shows the relation of the daily infant deaths to the daily temperatures, in Berlin, during the year 1905, which was characterized by some hot weather for that latitude.

According to these authors, in the spring of that year, the daily infant deaths were between 15 and 20. Had this rate been kept up throughout the year some 7,000 babies would have died. As a matter of fact, there were about 10,000 deaths of infants, the excess being almost entirely due to increased mortality in the summer. On certain days the mortality was so high that it was two or three times the norm.

CHART II.

BERLIN, 1905.—DAILY DEATHS OF CHILDREN UNDER 1 YEAR COMPARED WITH THE DAILY TEMPERATURE IN 2 P.M.



An examination of this chart shows two striking peculiarities. First, two sharp prominences with their apices on the 7th of June and the 2d of July, respectively; and, second, a high and broad elevation in August, crowned with a succession of smaller secondary prominences.

Liefmann and Lindemann distinguish two elements in their curves, (a), the early summer mortality and, (b), the late summer mortality.

Early summer mortality. On inspection it is seen that there is a striking parallelism between the temperature curve and the mortality. This is especially manifest in the sharp increase in the number of deaths on June 30th and July 1st, accompanying the high temperature on those dates.

This parallelism is manifest, not only on the hottest days, but the moderate heat of the fourth and fifth of June, also, is sufficient to provoke an increase in the deaths recorded.

An interesting circumstance developed from the study of this and other curves in their series is, that generally speaking, at first, only temperatures of considerable height (22° to 25° C.) are effective in provoking an increase in the infant deaths. Often the first hot wave does not call forth the expected response.

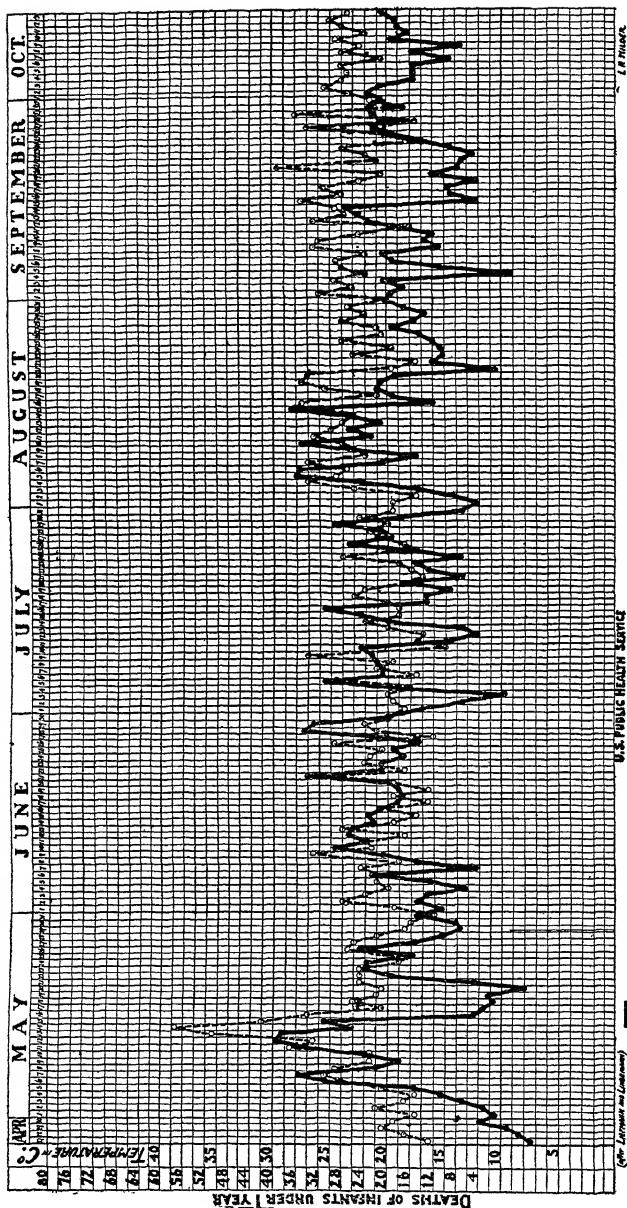
The late summer mortality. The late summer mortality corresponds to the high and broad curve of deaths from the middle of or end of July to the last of September. This portion of the chart presents a different relation to temperature than that corresponding to the early summer. The high mortality present in the first part of August no longer recedes to the norm with falling temperature. On the contrary, it remains great in spite of the interpolation of periods of cool weather of some duration. Nevertheless, rises in the temperature provoke an increase in the number of deaths which serves to give this curve its jagged outline.

The mortality curve, in this portion of the summer, seems to express the summation of the effects of a long period of warm weather, as a basis, combined with the exacerbations provoked by repeated sudden increases in the temperature.

Curves of a cool year. If now we examine these curves for a cool year we find a different set of relations. Chart III. shows these conditions during the year 1907, a cool summer with only one hot period in May.

CHART III.

BERLIN, 1907.—DAILY DEATHS OF CHILDREN UNDER 1 YEAR COMPARED WITH DAILY TEMPERATURE.



U.S. PUBLIC HEALTH SERVICE

TEMPERATURE ——— INFANT MORTALITY - - - - -

We see, upon examination, a response to the hot weather of the 7th and 12th of May, but, owing to the very moderate temperatures prevailing throughout the rest of the year, the broad mid-summer rise in the mortality curve is practically absent.

CHARACTER OF DEATHS IN THE EARLY AND LATE SUMMER

The differences in the reactions of the mortality curve to temperature, in the early and the late summer, is accompanied by differences in the nature of the infant deaths recorded. According to Liefmann and Lindemann, an examination of the death certificates showed that, in the early summer a large number of deaths were recorded with acute symptoms, not referable to the intestinal tract.

For instance, of the 88 infants dying on the hot day of July 2, 1905, only 16 died of intestinal diseases, while in 52, or about 60 per cent, the cause of death was given as convulsions, brain stroke and heart failure, or, in other words, with symptoms mainly referable to the central nervous system.

As the summer progressed, however, the number of deaths from gastro-intestinal diseases gradually increased, so that, towards the end of August and the beginning of September, from 72 to 78 per cent of the diagnoses on the death certificates gave this class of diseases as the cause of death. Hot days brought an increased number of certificates recording deaths with acute symptoms, and a number of such deaths were found, even in comparatively cool weather, at this period.

A considerable difference in the duration of illness was apparent. In the early part of the summer about 50 per cent of the infants died after an illness lasting only one or two days, while in the latter part only about 20 per cent died with such acute symptoms. The remainder succumbed to illness of a more chronic character.

The following tables from Liefmann and Lindemann give a good idea of the relative frequency of deaths with acute symptoms and from gastro-intestinal diseases in the various parts of the summer (Table I.) and the course of the mortality from gastro-intestinal diseases during the summer of 1905 in Berlin (Table II.).

TABLE I

Berlin, 1905	Number of infants dying each day		
	In the cool part of early summer	In the hot part of early summer	In the cool part of late summer with high mortality
Gastro-intestinal diseases.	3.0	13.2	41.3
Congenital debility and atrophy	6.0	6.2	4.3
Other affections	12.6	43.7	25.3
	21.6	63.1	70.9
Convulsions, brain stroke, and heart failure	7.7	32.7	20

TABLE II.—WEEKLY DEATHS FROM GASTRO-INTESTINAL DISEASE,
IN BERLIN, DURING THE SUMMER OF 1905
(*After Liefmann and Lindemann*)

1905	Total Infant deaths	Deaths from gastro-intestinal diseases	
		Number	Per cent
1. Cool part of early summer, (May 14-20)	171	25	14.5
2. Hot part of early summer, (June 4-10)	228	66	29
3. Cool part of early summer, (June 11-17)	125	41	33
4. Hot part of early summer, (July 2-8)	315	148	47
5. Hot part of late summer, (July 30-Aug. 5)	441	306	69
6. Cool part of late summer, (Aug. 13-20)	498	389	79
7. Cool part of late summer, (Aug. 27-Sept. 2)	347	250	72
8. Cool part of year after decrease in mortality (October 1-7)...	168	67	39

We see from the foregoing that the march of infant mortality in the first part of the summer is characterized by the great number of deaths with acute symptoms and short duration (24 to 48 hours) while, later, the high, broad and slowly descending curve is largely produced by the deaths of infants who succumb to more or less sub-acute affections, mainly, of the gastro-intestinal tract.

The influence of heat upon the mortality of infants in the first part of the summer is apparently immediate. In the latter part of the summer this no longer seems to be the case. At first sight one would be inclined to state that, while some causal relation is manifest, the late summer mortality of infants is not directly influenced by the heat which, therefore, can stand in no immediate relation to this phenomenon.

A closer examination, however, shows that we can, by no means, suppose that infants are necessarily relieved from the action of heat by reason of the comparatively long remissions of the temperature in the latter part of the summer. If we are to examine the effects of heat upon infants we cannot arrive at conclusions by considering outdoor temperatures only. The nursling passes most of his time indoors and it is the indoor meteorological conditions to which he is mainly subjected.

INDOOR TEMPERATURES

The credit of calling attention to the importance of indoor temperatures belongs to Flügge⁽¹¹⁾ who, in 1879, published a series of observations upon in-door temperatures in mid-summer. He found that the temperature, in-doors, was dependent upon the degree of heat received by the walls from the sun.

The diffusion of the heat through the walls was found to be relatively slow, so that their inner surfaces reached their maximum temperatures in the following order: East wall, 9 P. M.; south wall, 12 M.; west wall, 3 A. M.

The effect of radiation of heat from the inner surfaces of walls, protracted far into the night, was to maintain the in-door temperature at a level considerably in excess of that of the external air. During a relatively cool summer Flügge found that the mean in-door temperature might exceed the exterior by as much as 9.5°C. (17.1 F.)

Other observations on the in-door temperature have been made by Meinert^(41, 42), Hammerl⁽¹⁶⁾, and Rietschel⁽⁵³⁾, in Germany; in this country by Chapin⁽²⁾, Knox⁽²⁹⁾, and Helmholtz⁽¹⁹⁾.

Meinert (⁴¹, ⁴²) observed an average excess of 8.9° C. (16° F.) of the in-door over the out-door temperature in a room in Dresden in which an infant had died of summer diarrhea.

Hammerl (¹⁶) made observations in the dwellings of workmen and found that the average mean in-door temperatures were greatly in excess of the out-door. In one instance the temperature never fell below 24° C. (75.2° F.) for a period of over 14 days and often rose to 32° C. (89.6° F.) and, on one occasion to 35° C. (95° F.) with out-door temperatures that never exceeded a maximum of 23.7° C. (74.6° F.).

In the cool summer, of 1910, Rietschel (⁵⁵) made observations with maximum and minimum thermometers and recording thermographs in dwellings in Dresden, in which, for the past five years, a high infant mortality had been recorded.

He states: "I admit frankly that the results astonished me. I had indeed supposed, that, in such dwellings, temperatures of considerable height might prevail in summer, but I had never expected that such excessive temperatures could be maintained, not only daily but weekly, with an out-door temperature relatively so low."

In some instances the temperatures rose to 35° C. (95° F.), and 37° C. (98.6° F.) with out-door maximums of but 23.5° C. and 21° C. (74.3° F. and 69.8° F.). During the hot summer of 1911, he reports an instance in the home of a workman, of maximum temperatures of 38° C. (100.4° F.) with minimum of 30° C. (86° F.).

Similar measurements have been made in this country by Chapin (⁴), Knox (²⁰), and Helmholtz (¹⁸), during the summer of 1912 with like results. Helmholtz observed, in the stock yards district of Chicago, maximum in-door temperatures 30° F. in excess of the out-door maximum. Minimum temperatures below 80° F. were rather infrequent, occurring only 83 times out of 1,374 maximum and minimum readings.

It is clear, from the foregoing, that infants are often obliged to endure, for considerable periods, temperatures which are greatly in excess of those of the external air. Moreover, the effect of these temperatures is often enhanced by excessive clothing and rubber diapers. It is a too frequent experience to find, in crowded tenement homes, the busy mother keeping the baby in the kitchen, often near the stove, in order to have it close at hand.

EFFECTS OF HUMIDITY

The influence of a high degree of moisture in the air in increasing the effects of heat is well known. It would natur-

ally be expected that hot days with high humidity would show the greatest increase in infant death. The observations on this point are inconclusive. Days on which great infant mortality has been recorded, have, for the most part, been hot and dry.

Meinert, Prausnitz (⁵²), Liefmann and Lindemann and others point out that the relative humidity of the external air is, by no means, an index of the moisture to which infants are exposed. In the dwellings of the poor, where the great majority of infant deaths take place, the infant passes a large part of his time in narrow and usually crowded quarters, where the relative humidity may be greatly raised by the lack of ventilation, the moisture derived from the breath and skin of numerous inmates (frequently five or six in a single room), and the water evaporated in cooking, ironing and washing.

Indeed, Kubly's (³¹) observation (cited by Meinert) showed, that in the dwellings of the poor in Dorpat, a mean relative humidity of 83 per cent was formed in 223 observations and, in 30 instances 90 to 98 per cent was recorded. Knox's observations in Baltimore, during the summer of 1912, showed the relative humidity in such dwellings to vary between 70 and 80 per cent.

CIRCULATION OF AIR

It is evident that the circulation of the air is of great assistance in eliminating heat from the body, by accelerating evaporation. I will cite only the recent experiments of Flügge (¹³) and his co-workers, Paul, Ercklentz and Heymann. They showed that in stagnant air, symptoms of heat retention begin to make their appearance at temperatures of 24 to 25° C. (75.2° F. to 77° F.), which, however, disappeared when the air was set in motion by a fan.

If, then, heat is to be regarded as a direct factor in the causation of summer infant mortality, we would expect to find an increased number of deaths of infants in houses and in sections of cities where conditions are unfavorable to the circulation of air. Such, we find is the case.

Ballard (¹), in his extensive investigations of summer mortality in England, noted that when the wind had free access to houses the summer infant mortality was low, while it was high in those cities, or sections of cities, where, from the disposition of the streets or houses, they could not be swept by the prevailing winds in summer.

Meinert (⁴¹, ⁴²) to whom belongs the credit of being the first to investigate, in Dresden, the relation of housing condi-

tions to the summer mortality of infants found, that in practically every instance, in the case of 580 infants dying in the eleven summer weeks of 1886, the conditions were such as to prevent the free circulation of air in the rooms in which these children lived. In only one instance did any of these infants die in a house, exposed freely on all sides to the wind. The infants died in those dwellings, which from their low-lying situation, their location in the rear of other dwellings, the presence of courts, narrow streets and shut-in architecture, were denied the access of cooling breezes; or, from the disposition of the windows, through ventilation was impossible.

Thus on low-lying Hechtstrasse, with shut-in houses and many courts, 18.49 per cent of the living children under one year died; on high-lying Kiefernstrasse, with a more open style of architecture, only $2\frac{1}{2}$ per cent; upon Johan Meyer Strasse, with model workmen's homes, open to the air on all sides, none.

Prausnitz points out that in the absence of through ventilation, the only exchanges which can take place between the inside and the outside air arise through differences in their temperatures.

In the absence of through ventilation these differences of temperature are so slight, in hot weather, that stagnation readily takes place. He and his co-workers ⁽¹⁸⁾ investigated in Graz the location of windows in dwellings in which infants had died of summer diarrhea during the years 1898, 1903 and 1904. A dwelling was regarded as susceptible of through ventilation when it possessed windows in opposite walls, as partially so when the windows were in walls at right angles to each other, and as not susceptible, when windows in one wall only were found.

They obtained the following results:

Year	Susceptible of through ventilation	Partially susceptible of through ventilation	Not susceptible of through ventilation
1903, 1904	27.4%	7.1%	65.5%
1898	15.4%	19.5%	65 %

It will be seen from the above that in the years 1903 and 1904 approximately 80 per cent of these dwellings did not present conditions favorable to a free circulation of air.

OTHER HOUSING CONDITIONS

Besides Meinert's former work, other careful studies of housing conditions in relation to infant mortality have been made. Among these may be especially mentioned those of Willim (⁶³) in Breslau, of Liefmann (⁶⁴) and Kathe (²⁵) in Halle, and Liefmann and Lindemann (³⁸) in Berlin. These investigations all bear testimony to the great influence housing conditions have upon infant mortality, and particularly the conditions favoring high in-door temperatures or absence of free circulation of air.

While it is true that the conditions were such as would favor, as well, the dissemination of infectious disease, we encounter the paradox that certain conditions, intrinsically unhygienic, have a distinctly favorable influence on the summer mortality of infants.

Thus it was found by Meinert, Willim and Liefmann and Lindemann that infants living in basements and cellars show a smaller increase in their summer death rates than do breast-fed infants; while, with respect to the other stories, the death rate usually increases as we go up, being found highest next to the roof. (Meinert found the greatest number of deaths in the ground and first floor.)

Liefmann's and Kathe's investigations in Halle showed that the summer mortality of infants was rife, not only in certain streets, but in certain houses. Thus Liefmann found that out of 380 streets which Halle possessed at that time, no less than 141, or over 37 per cent, had no infant deaths.

We can also readily conceive from the character and situation of the houses in which infants die that, once they are heated through by the warmth of the early summer, the heat stored in the earth, pavements, and walls, in their shut-in location, prevents any substantial cooling off in the late summer, in spite of periods of moderately cool weather. In the early summer, before there is much stored heat, remissions in the external temperature have a much greater effect.

EFFECTS OF HEAT IN CAUSING DEATH

It must be clear, from the foregoing, that the greater the summer heat the greater the number of infant deaths, and that it is an in-door and not an out-door climate to which infants are exposed. There remains for discussion the manner in which their deaths ensue. There are two hypotheses by which these can be explained.

Owing to the fact that the great majority of infants dying in the summer are bottle-fed, the deduction is logical that the onus of their deaths must be placed largely upon the food most generally used in the artificial feeding of infants, namely, cow's milk, which becomes so readily spoiled by the summer heat, when carelessly produced and handled.

We find two views generally held to explain the pernicious action of cow's milk in the summer:

1. That as a result of careless handling and inadequate cooling on the part of the producer and the consumer, the germs which always contaminate cow's milk undergo such proliferation that the ordinary saprophytic bacteria in milk, or their toxic products, endanger the life of the artificially fed infant.

2. That the deaths of artificially fed infants are not due, solely to the use of a germ-laden milk and their resulting poisons, but that the use of an alien food creates a predisposition to infection with pathogenic bacteria which may be acquired in other ways than through the milk, as for example, through contact or by the agency of flies.

3. A second hypothesis, held in this country some thirty-five years ago, and advanced anew by Meinert, in 1881, is that heat itself, by its various effects upon the infant organism must be regarded as the chief factor in the summer mortality of infants. This theory has recently gained many adherents abroad, such as Rietschel, Finkelstein, Liefmann and Lindemann, Kathe, Klose, Prausnitz and others.

I will endeavor to discuss, as briefly as possible, these hypotheses.

Effects of stale, or germ-laden milk. Milk is so plentifully seeded, during the course of its production and handling, with germs of all kinds, their multiplication is so favored by temperatures in excess of 60° F. and the possibilities of transmitting disease through its use are so obvious, that none can deny its agency in this respect. Indeed, the accumulating literature of the epidemics of typhoid fever, the paratyphoid affections, diphtheria, scarlet fever and septic sore throat transmitted through the agency of milk, not to mention the frequent presence of the tubercle bacillus in milk and milk products, only serves to emphasize the necessity of rigidly controlling the production and handling of this great source of food.

The most extensive investigation of recent years as to the effects of feeding different kinds of milk to infants is that of Park and Holt (⁴⁹) in New York. Six groups of infants

were observed, respectively fed on: cheap store milk, condensed milk, milk from a central distributing station, good bottle milk, the best bottled milk and breast milk.

During the winter but little differences in the results were noted, no matter what milk was fed. During the summer, however, the difference was striking. The infants fed on breast milk and the best bottled milk showed the best results, while those were very bad in the case of the infants fed on condensed milk and the cheap store milk.

Rietschel, Liefmann and Lindemann and others, however, advance the following reasons to show that the influence of cow's milk in causing summer infant mortality has been overestimated:

1. The hypothesis that the ordinary saprophytic germs of milk produce disease and death in infants is singularly lacking in experimental confirmation. The most exhaustive and complete experiments of this kind, *i. e.*, those of Flügge (¹²), show that of the saprophytic, at most, only the peptonizing bacteria in milk may have some harmful action and are capable of exciting diarrhea when fed to dogs in large quantities.

2. Milk epidemics reported, in the literature, are mass epidemics like other food epidemics. All the individuals, irrespective of age, who took the milk, were affected. Their course has also been quite different from that of the summer diarrhea of infants.

3. The use of sterilized milk ought to have a very great influence in reducing summer infant mortality. This does not seem to be the case. For instance, Liefmann (³⁴) reports that infants boarded out in Halle have been provided since 1904 with sterilized milk by the municipality, yet the summer mortality among them from gastro-intestinal disease has been the same or somewhat greater than that prevailing for the rest of the city infants. Out of 384 infants supplied in this way during 1905, 1906 and 1907, 45, or about 12 per cent, died, of which number 30, or 8 per cent, died of intestinal diseases. Moreover, it has been a common clinical experience to see infants who have received nothing but the purest cow's milk, from a bacteriological standpoint, sicken with all the symptoms of typical summer diarrhea.

4. The increase in the summer mortality of infants seems to be initiated only by temperatures in excess of 24° C. While it is true that multiplication of germs in milk is greater at 30° C. than 24° C., it cannot really be maintained that milk will not spoil almost as effectively at the latter temperature than at the former. Yet why should milk, spoiled at

24° C. not increase mortality, while milk spoiled at 30° does?

5. Finkelstein (⁹) and Liefmann and Lindemann (³⁷) point out that on hot days a large part of the mortality ensues within 24 to 48 hours. Liefmann and Lindemann state, in this connection: "It is difficult to conceive how the spoiling of the milk, the infection or the intoxication of the child, the sickening and, finally, the death can be compressed all within a single day."

While it is true, in the case of the investigation of Park and Holt (⁴⁸), that the infants who received the cheap store milk showed the worst feeding results, there are certain circumstances, noted by the investigators, which must be taken into account in weighing the conclusions.

For instance, the results of feeding with condensed milk, in which the bacteria were found to be relatively few, gave results but very little better than that obtained with the cheap store milk. Again, we are told that the store milk was boiled and subsequently kept on ice in the majority of instances. The results of the laboratory examination of numerous strains of bacteria isolated from the milk showed only one strain that produced diarrhea when fed to kittens.

The environment of the children was not the same, those using the store milk belonging to a poorer and needier class. It is just this class of the population who crowd into small quarters with windows opening on courtyards and light wells.

Moreover, the investigators themselves state: "There seem to be many factors, but a consideration of the facts accumulated indicate that heat is the primary factor and bacteria and their products a secondary one, except when the contamination is extreme or the pathogenic organisms present." And again: "The depressing effects of great atmospheric heat, *i. e.*, a temperature of 90° F., or over, were very marked in all infants no matter what their food. Those who were ill were almost invariably made worse and many who were previously well became ill." They also indicate that proper *care* was after all the most important factor in keeping the infants well. With proper care some infants were fed successfully all summer on the cheap store milk.

That stale milk is not always deleterious to infants when the environment and care are good is shown by Rietschel's (⁵⁴) experiments. Rietschel, after experimenting upon himself, fed to a series of infants cheap store milk which had previously been heated (as is the universal custom in Germany) and then allowed to stand in an open vessel for 24 hours at room temperature in the summer. The infants for the most part

did very well on this diet and showed not the slightest trace of disturbance. In a few instances, he had the impression that such a milk could cause more readily loose stools than a milk poor in bacteria. The milk was often turned when fed to the infants.

One further point which must be noted is that the infants which show the least increase in their death rate in summer are not the breast-fed infants, but infants who live in basements and cellars. Thus Liefmann and Lindemann inform us that in the cool part of the early summer in Berlin breast-fed infants died at the rate of 1.5 per day, while in the hot part of the summer the rate was 4.5. The cellar infants died at the rate of .9 per day in cool weather and 2.25 per day in hot weather. Thus the death rate of the breast-fed children was increased three-fold by the hot weather while that of the basement infants was only $2\frac{1}{2}$ as great. This can only be explained by reason of the greater coolness of cellars and basements.

Again in the hot month of August in 1911 in Berlin, the breast-fed infants showed twice the mortality they did in the cool part of the summer, 107 dying in August as against 51 in June.

While it cannot be denied that milk, so long as it is exposed to contamination by human hands and flies, or is obtained from cows with tuberculosis or with inflammatory diseases of the udder, must ever be liable to convey pathogenic germs, it would seem, in view of the foregoing, that those who would attribute the bulk of the summer mortality of infants to stale milk, take a too one-sided view of the matter, and one not borne out by the facts.

The role of infections in the summer mortality of infants. The summer diarrhea of infants has presented so many of the appearances, at first sight, of a specific infectious disease, as, for example, its restriction to certain streets or sections of a city and the almost explosive rise of the mortality, that much labor has been expended to discover a specific organism.

The bacteriology of summer diarrhea was first carefully studied by Escherich ⁽⁸⁾ in Europe and Booker ⁽⁸⁾ in this country. They found no definite organism associated with summer diarrhea. In 1902 and 1903, Flexner ⁽¹⁰⁾, Duval and Bassett ⁽⁶⁾, Wollstein ⁽⁶⁶⁾, Waite ⁽⁶²⁾, Kendall ⁽²⁶⁾, and others, reported the finding of the bacillus dysenteriae (Flexner type) in the stools of numerous infants suffering from diarrhea. It should be noted, however, that, in the

great majority of these cases the dejections were typically dysenteric with blood and mucus in the stools.

Within the last few years Morgan (⁴⁴) and his co-workers report the isolation of a motile, glucose-fermenting organism, which does not attack lactose or mannit from the stools of infants suffering from diarrhea in London during the years 1904-1906. The organism was present in about 45 per cent of the cases examined and produced diarrhea when fed to laboratory animals.

There is therefore evidence that a fair proportion of the deaths of children in summer are due to specific infections, but the evidence adduced is not sufficient to explain all of them in this way. Moreover, Liefmann and Lindemann have studied the course of other epidemics, such as cholera epidemics in Berlin in the summer time in order to throw some light on this matter. They found that no effect ascribable to temperature was visible in the course of such epidemics, as their progress was quite uninfluenced by meteorological conditions, the curves exhibiting a remarkable contrast to the infant mortality curves in the same city.

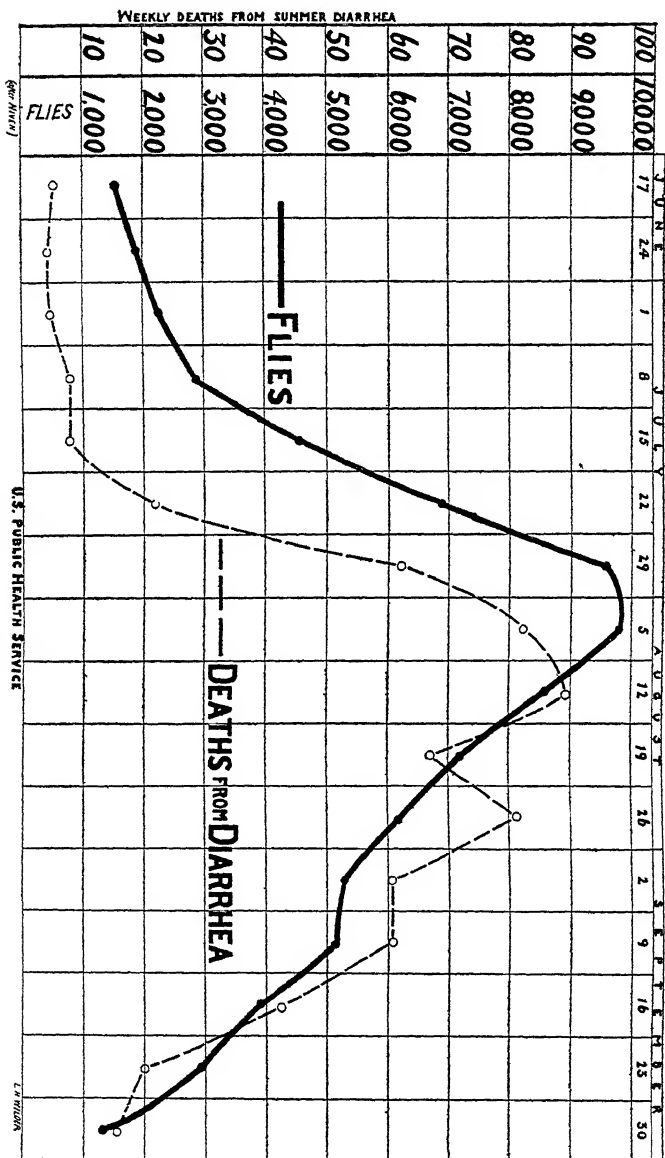
Again, McLaughlin (³⁹) has shown that where a definite source of infection for gastro-intestinal diseases exists, as, for instance, a polluted water supply, the death rate in infants from enteritis may be almost as great in the spring as in summer months. This has been especially true of localities which have rather cool summers.

Flies. Any hypothesis considering the summer deaths of infants as due to infections must clearly consider flies as probable or even principal carriers of the infecting organisms. The fly theory has been very carefully considered by O. H. Peters (⁵⁰), who made an intensive study of the incidence of diarrhea in two sections, inhabited by workmen, of the city of Mansfield, England. He found no direct proof of the agency of flies in carrying summer diarrhea and states that before this theory can be confirmed, experiments of scientific accuracy will be required, such as were used to prove the transmission of yellow fever and malaria by mosquitoes. On the other hand, he could develop no data which would render the implication of flies in the transmission of gastro-enteritis inherently impossible.

The following chart drawn from the data given by Niven (⁴⁸) shows the incidence of flies as compared with the deaths from summer diarrhea in Manchester, England, by weeks. The incidence of flies was determined by counting the numbers caught weekly in traps located in various parts of the city.

CHART IV.

WEEKLY DEATHS FROM SUMMER DIARRHEA (CHILDREN UNDER 1 YEAR) COMPARED WITH WEEKLY PREVALENCE OF FLIES: MANCHESTER, ENGLAND, 1905.



It will be seen that the death rate in infants lags behind the fly curve and then increases at a much more rapid rate than the flies. These increase in arithmetical progression while the increase in infant deaths from diarrhea is almost geometrical. The impression derived from this curve is that of an increase in flies and summer diarrhea both due to a common cause.

One other difficulty is the circumstance that Peters found, while 32 per cent of the breast-fed infants investigated developed an attack of diarrhea during their first year, that 90 per cent of the infants on cow's milk were affected. Yet it is difficult to conceive of an affection, spread by flies, being selective in its nature in the same age group, especially as Peters found the proportion of breast-fed and bottle-fed children receiving table food to be approximately the same.

Besides this Peters found that the difference in the incidence noted above was dependent, not upon cow's milk, *per se*, but upon the circumstance of being breast-fed or not breast-fed. It cannot be denied, however, that cow's milk, when kept uncovered in the home is much exposed to infection by flies.

Finally, Peters found that certain areas investigated had a much higher incidence of diarrhea than other sections showing a much greater prevalence of flies.

EFFECTS OF HEAT UPON INFANTS

There remains now to examine the ways in which heat might damage the organism of the infant.

Heat stroke in infants. We are all well aware that, every summer, numerous adults die in our great cities through heat stroke. As will be seen later there seem to be strong reasons for believing the infant more sensitive to heat than the adult, so there can be no ground for thinking that when adults perish, infants escape. It has been stated, in the foregoing, that hot days are accompanied by a number of deaths of infants with acute symptoms not referable to the gastrointestinal tract. It is probable that a goodly proportion of these are cases of heat stroke.

While references to heat stroke, in infants, in the literature are, by no means numerous, a number of cases have been reported by Illoway (²¹), Zahorsky (⁶⁸), Snow (⁶⁰), Finkelstein (⁹), Neuman and Japha (according to Rietschel), Rietschel (⁶⁶), Liefmann and Lindemann (⁸⁷), Meyer (⁴⁶), and others. They were often breast-fed infants, were usually in

good health, but, for the most part, of the fat pasty type. In most instances some prodromal symptoms of restlessness and fretting have been present, after which the baby was taken suddenly ill, often in the evening, with loss of consciousness, high fever, hot skin and convulsions. The urine, when examined was found to contain casts and acetone (in one case sugar, Finkelstein). With prompt hydrotherapy cures have been effected in many instances, while, in others, rapid death has ensued.

But, after all, only a small percentage of infants die during the summer in this fashion. Illoway estimates their number at two to three per cent of the total infant deaths; Finkelstein at six or seven per cent. These are simple guesses, for which there is no statistical verification.

Besides thermic fever, we have two other types of affections especially fatal to infants in hot weather (a) typical cholera infantum, running a rapidly fatal course with watery diarrhea, vomiting, high fever and, frequently, convulsions. and (b) the sub-acute diarrheas which may last for days or weeks before a fatal termination.

It will be well, at this point, to run over the principal effects which have been noted as to the action of heat upon the organism.

Tolerance of heat. With respect to adults, Rubner (⁵³) found that temperatures in excess of 24° centigrade and relative humidities of 80 per cent caused symptoms of heat retention to make their appearance in adults. The experiments of Flügge, Paul, Ercklentz and Heymann have already been referred to as to the effects of stagnant air in setting up symptoms of heat retention.

Haldane (¹⁵) found that moderate work at wet-bulb temperatures in excess of 25.5° C. (78° F.) impracticable by reason of symptoms of heat retention.

Effects of Heat upon Metabolism. With rising temperatures the heat eliminated from the body by means of radiation and convection becomes progressively less until a point is reached in which all the labor of heat elimination is performed by the evaporation of moisture. Ranke (⁵³) points out that when the body has to choose between the quantity of food necessary for nutrition and that consistent with heat regulation, it is compelled to choose the latter in self-defense. As a consequence, in hot weather, the appetite is greatly reduced.

As a result of calorimetric measurements, Ranke found that, with mean temperatures of 25° C. the intake of food sank,

in adults, to energy values, below those represented by the metabolism of the fasting, resting adult.

Another effect of heat is to depress the anabolic processes. Thus L. F. Meyer (⁴⁶) found while the weekly gains in weight by the infants at the Berlin City Orphanage during the relatively cool months of July and August, 1910, were 590 and 600 grams, respectively, in the very hot months of July and August, 1911, these were but 290 and 350 grams.

Heat, sufficient to cause rises in the rectal temperature of the resting adult and other symptoms of heat retention has also the property of accelerating the rate of metabolism. Sutton (⁶¹) found that in an adult exposed to relatively high temperatures (37° C.) that, in addition to the symptoms of heat retention, the respiratory exchange and the respiratory quotient were raised. He concludes that high temperatures accelerate the metabolism as heat does any simple chemical reaction. In this way a vicious circle is established.

Evaporation of Moisture. While it is a matter of common knowledge that heat greatly increases the amount of water evaporated by the body there is interest in referring to the amount of this loss. Hunt (²⁰) found that with high dry temperatures (wet-bulb around 70° F.) and exercise as much as 13½ litres of water were taken daily and yet the secretion of urine was then by no means free. In another series of observations he found that, in spite of frequent drinking, 16 hours were required to replace water evaporated from the body during a day's experiments in the hot room. In these latter experiments the hemoglobin index of the blood was the same before and after exposure to the heat. Therefore, the source of the water evaporated was the tissues of the body.

Effect of Heat upon the Digestive Secretions. There is evidence to show that the activity of the digestive glands especially the stomach, are depressed by heat. v. Salle (⁵⁹) found that exposures to moderately high temperatures (29° to 31° C. (84.2° to 87.8° F.) had the effect of greatly diminishing not only the amount of the gastric secretions, but their acidity and digestive activity. In this way the stomach not only loses a portion of its power to act upon food, but, from the diminished or absent acidity, there is a corresponding loss in the antiseptic and antifermentative action of the gastric juice.

Effect of Heat upon the Resistance to Bacteria. The observations of Medowikow (⁴⁰) show that exposure to heat has the effect of diminishing the resistance of young animals to bacteria, in the intestinal tract. Medowikow exposed young

rabbits to incubator temperature for 12 hours. He found, at the close of the experiment, that, not only were the bacteria in the intestinal tract increased, but also, in nine cases out of ten, *B. coli* was present in the spleen or the liver.

Effects upon the Infant Organism. Let us now examine in what way the results enumerated above can be interpreted with respect to infants.

Metabolism of the Infant. In the first place the metabolism of the infant is keyed to a much higher plane than that of the adult. According to Nieman (⁴⁷) the respiratory exchange of the infant is higher than that of the resting adult and corresponds to that of an adult doing moderate work. The total metabolism of infants is about 100 calories per kilogram and from 50 to 90 calories are required, exclusive of the amounts retained for the purpose of growth. This corresponds to the metabolism of an adult doing fairly severe muscular work.

Another evidence of the more active metabolism of the infant is shown by the skin temperature. Rubner (⁵⁸) found that a thermometer placed between the skin of an adult's chest and a woolen undershirt registered about 32° C. Liefmann and Lindemann (³⁷) state that thermometers inserted between the skin and clothing of infants registered between 34° and 35° C.

Since the metabolism of infants is higher they produce much more heat than the adult in proportion to their weight. Though it is true that they have also a proportionately greater skin surface to provide for the elimination of this increased amount of heat, it must follow that when the escape of heat is prevented by meteorological conditions, their greater rate of metabolism must favor heat retention.

Thermo-Regulation in the Infant. We can deduce from the above, for the infant, narrower temperature limits within which heat regulation is efficient than for adults and, consequently, a more labile condition of temperature equilibrium. Experimentally, such has proved to be the case. The observations of Genersich (¹⁴), Rietschel (⁵⁷), Kleinschmidt (²⁷), Heim and John (¹⁷) show that when infants are experimentally exposed to moderately high heat (28° to 32° C.) a rise in their body temperatures takes place. This rise was found to be greater in infants suffering from disturbances of the nutrition (Kleinschmidt, Rietschel).

Meinert (⁴²), in his investigations in Dresden, found that the rectal temperatures of infants, in homes where the in-

door temperatures were high, were increased to 39° or 40° C. at night, although, according to the parents' statements, the infants had been comparatively well.

Reduction of Tolerance for Food. Another effect of heat is the reduction of the tolerance for food. Ranke's observations in respect to this effect of heat upon adults have already been mentioned. The adult, however, taking both solids and liquids, can diminish the one and increase the other.

Meinert (⁴¹) points out that, in the breast-fed infant this demand for increased liquids is regulated by the breast, for, as a result of numerous observations, he has found that breast-milk is more fluid in the summer than in the winter. Indeed, this is to be expected, as, in hot weather, the mother will instinctively drink more and eat less.

Besides this v. Pirquet (⁵¹) also points out that, not only the quantity, but the quality of the food obtained by the breast-fed child is influenced by its appetite. In hot weather, when this is reduced, it quickly ceases to suck, hence it receives only the more fluid "fore-milk," while the rich "after-milk" remains in the breast.

The bottle-fed child is far more passive than the breast-fed with respect to its food, which it obtains with a minimum effort through the effects of gravity. It, therefore, varies its intake far less than the breast-fed child. Moreover, its increased thirst often leads mothers to satisfy it with additional food instead of water.

It is obvious, under these conditions that bottle-fed babies are often relatively over-fed, in hot weather, a circumstance commented on by numerous authors.

Another effect of heat of importance to the digestion of infants is the diminution of the quantity, acidity and activity of the gastric juice, as shown by v. Salle's experiments and the resistance of the intestinal tract to bacteria as demonstrated by Medowikow.

Not only will the digestive processes take place with greater slowness, thus favoring stagnation of the intestinal contents, but the deficient acidity of the gastric juice may, doubtless, permit pathogenic germs which would otherwise succumb to its acidity, to gain access to the intestine. The diminished resistance of the intestinal epithelium would permit the proliferation of germs introduced in this manner or favor endogenous infections.

We see from the foregoing that there are a number of reasons why heat should exercise a particularly deleterious in-

fluence on infants. There remains for final examination the possible effects of heat in respect to cholera infantum and the sub-acute intestinal infections.

EFFECT OF HEAT IN PRODUCING CHOLERA INFANTUM

Typical cholera infantum has always been regarded by the earlier American authors (cf. Miller) as a heat effect. The following reasons have been advanced by Meinert, Rietschel and others for regarding it from this standpoint:

1. This severe form makes its appearance only after exposure to very hot weather or high in-door temperatures.

2. It often attacks infants hitherto in the best of health. Meinert found that 54 per cent of all the infants whose deaths he investigated had always enjoyed good health, while Johnston (²⁴) from his observations in Leicester places this number at 75 per cent.

3. The bacteriological findings and post-mortem appearances in cholera infantum are far more indefinite than in the sub-acute intestinal affections.

4. High fever is usually present.

5. A heat effect may be inferred *ex juvantibus* or, in other words, the most effective treatment is removal to a cool location, hydrotherapy and restoration of the body fluids.

In this connection a case recited by Rietschel (⁵⁶) is instructive. During the summer of 1911 an artificially fed infant, receiving excellent milk, both from a quantitative and qualitative standpoint, from the Dresden Säuglingsheim, lived in a dwelling where continuously high temperatures were registered. The infant bore the heat very well up to the 8th of August. No diarrhea was present up to that time, the bowels being somewhat constipated. On that date, slight diarrhea made its appearance, but the child, while listless, seemed comfortable. On the 9th the symptoms suddenly changed. The diarrhea became spurting, and the child's temperature rose to 40° C. The infant was quickly removed to the hospital, where the fever was reduced by hydrotherapy. We are not informed by Rietschel as to the subsequent fate of the child.

Sub-Acute Diarrhea. While in this class of affections the influence of heat is by no means so apparent, from the statements already made, however, it must be conceded that heat has important predisposing effects, in the following ways:

1. By reduction of the tolerance for food.
2. By reduction of the activity of the digestive secretions.
3. By reduction of the normal resistance of the intestines to bacterial invasions.

Clinical experience has shown that stormy symptoms can be induced by feeding infants excessive amounts of the purest food, from the bacteriological standpoint. The relative reduction of the tolerance for food, by the action of heat must, as has already been pointed out, produce many instances of overfeeding, leading to nutritional disturbances.

The continued influence of heat upon the infant, whose nutrition has been thus disturbed, leads to impairment of the thermal regulation, which is more labile in children with digestive disturbances. This, in turn, has the effect of still further lowering the tolerance for food, so that, in this way, a vicious circle is established. Added to this, are the weakness of the digestive secretions, the stagnation of food in the intestine and the increased susceptibility to exogenous and endogenous infections.

It seems clear, from the foregoing, that we must regard heat as a powerful factor in directly determining the summer mortality of infants. Yet to ascribe all of summer mortality exclusively to this cause would be as one-sided as to ascribe it all to the method of feeding.

I think, however, that the recent observations recorded have furnished us with lines of much greater precision on which to base our preventive measures. Our attention has, besides, been especially directed anew to the influence of poor housing conditions in the production of summer deaths in babies.

The indications for prophylaxis are plain. They consist, hand in hand, with an improvement in housing conditions and the development of residential suburbs, in a greater emphasis upon the care of infants in their homes in the summer months. Mothers must also be informed of the fact that excessive heat, *per se*, is deleterious to infants and, when hot weather is present, special efforts must be made to prevent overheating and relative overfeeding of babies by the use of frequent tepid baths, light clothing, fresh air, increase in the amount of water given, lengthening of the feeding intervals and reduction in the amounts of food. The advantages of breast-feeding are only emphasized by all that has been brought out. Here nature automatically modifies the composition of the food in accordance with the heat in a way to which artificial feeding can never compare.

CONCLUSIONS

1. The action of heat as a direct cause in the summer mortality of infants has been greatly underestimated in the last twenty-five years. In the future much more weight should be given to its influence.

2. The lethal action of heat is a function, not so much of the maximum and mean temperatures of the external air as of the in-door temperatures, which, in the late summer may continue to be high, in spite of remissions in temperature of the external air.

3. The action of dirty and stale milk in causing the death of infants, has been given a significance which has overshadowed other factors of equal or greater importance.

4. There is evidence to show that a certain proportion of infant deaths are due to specific infections, in the dissemination of which contact infection and flies doubtless play a part.

5. As a result, future activities for the prevention of infant mortality must concentrate themselves to a greater extent on the question of housing, especially the factors productive of high in-door temperatures, such as overcrowding, narrow streets and the absence of through ventilation.

6. Poor housing conditions can be partially neutralized by the proper care of babies in the summer. The general public should be educated as to the importance of high in-door temperatures in causing the death of infants, and, especially, as to measures which prevent babies from suffering from the heat.

7. Breast-feeding must still be regarded as a most, if not the most important preventive of the summer death of infants.

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DISCUSSION

Dr. T. B. Cooley, Detroit: We know that there is a very obvious relation between summer heat and infant mortality, but in spite of all the work that has been done lately upon this subject, the precise nature of the effect of heat is still not clear. Apparently a great proportion of the increased mortality during the hot season is due to a lowering of the child's resistance to such factors as over-feeding, ill-judged feeding, spoiled food, and specific infections. We have still to learn just how this indirect effect of the summer heat is produced, but it has been clearly shown that a great part of it can be avoided by improving housing conditions. It is a striking fact that improvement in housing conditions seems to have considerably more effect in lowering the summer mortality than improvement of the milk supply. Heat and moisture inside the house, and summer hygiene aside from the feeding question are apparently the first things to attack. It is possible to do harm by over-emphasizing bad milk. The majority of general practitioners still believe that summer diarrhea is due to bad milk. So

long as the profession continues to lay all summer diarrhea to this cause, not enough attention will be given to other reasons for the high summer mortality. We hesitate to admit that impure milk is not responsible for so much trouble as we once thought, because we are afraid people may be encouraged to use it. It seems to me that the profession and laity should understand that clean milk alone will not solve the problem.

Inasmuch as we all realize that we do not know so much as we should like about summer mortality, and that there is a great field for further work in that line, I wish to offer the following resolution:

RESOLVED, That, considering the great importance of further accurate scientific study of the relation between summer heat and infant mortality, the American Association for Study and Prevention of Infant Mortality respectfully suggest to the United States Public Health and Marine Hospital Service the desirability that such a study be undertaken under the auspices of this Service.

Dr. Fritz B. Talbot, Boston: I want to put myself on record as disagreeing with Dr. Cooley in saying that there are things of more importance in causing summer diarrhea than dirty milk. I believe in Boston dirty milk is responsible for the majority of deaths from summer diarrhea and infectious diarrhea. Heat may be a predisposing factor toward impure milk; but heat is not a more important factor in causing death of infants in summer than dirty milk.

Dr. I. A. Abt, Chicago: Several years ago I presented a paper on this subject at a meeting of the Section on Diseases of Children of the American Medical Association, which met at Los Angeles, and a great many doctors wondered what I was talking about. Those from New Mexico and Arizona and Southern California said that they had no such experience; they had no summer mortality. So there must be something besides the heat. There must be such an element as humidity that is not thoroughly understood. I think that some of these conditions are due to the debility caused by the heat. Every one is prostrated and not able to do his best, and that is true throughout the temperate zone. I presume that the baby feels it, especially if he is living in an unsanitary home, or has been badly treated all winter. Babies bear extremes of temperatures badly. Nobody has studied the effect that cold would produce. I do not believe a baby could stand excessive cold any more than excessive heat. Every one knows that Arctic explorers are rendered feeble, and many die on account

of the effects of long-continued cold, and those who travel in the tropics tell us that the debility is very great. Dr. Epstein has had a large number of deaths in his infant asylum. It seems to me we make very little progress when we tell people dirty milk is bad and clean milk is good. Then without good and sufficient reasons, are we willing to say it is not the milk at all? I think the best and the purest milk is none too good for the babies. I am in favor of pure certified milk.

Dr. H. L. K. Shaw, Albany: I agree with the last speaker that there is something more than heat responsible for this trouble. Humidity combined with heat has its effect on infant mortality. With relatively high temperature and high humidity we get a lower resistance and a tendency toward diarrheal affections. We should carefully supervise the feeding when the temperature and humidity are high. By that means I believe we will be able to reduce the morbidity of children in the ward. The same thing can be done in private practice. One can also remove the child from the upper floors and put him downstairs where the temperature is lower—or, if a hospital patient, one can remove him from the corner with the screen around him and put him where he will have a circulation of air.

Dr. Herman Schwarz, New York: I want to impress upon the Association the amount of work that a paper of this kind entails. In 1910 I went through the records of the City of New York, getting the daily deaths and the daily temperatures. At the time I got those statistics there wasn't such a thing as a death rate of infants obtainable. Deaths were classified as being under five years. I took the temperature of apparently normal infants. Breast-fed babies in the tenements often had a temperature of 101 in the summer. What was the cause of this high temperature and high mortality, we do not know. I think Dr. Cooley is rather indiscreet in putting it this way before this society. We are not all physicians, and even for physicians I think it would be indiscreet to let that statement go out. I think Dr. Abt put it very well. We have got so far and let's leave that alone. We want not only good milk, but we want everything else that's good. Dr. Cooley certainly means that we should have pure milk, but in addition to that I will agree with him that pure milk is not the only thing. We need also proper housing and adequate ventilation. Pure milk and a great deal of fresh air are essential. As long as our cities are built as they are, block upon block, we will have summer infant mortality. We are making

an interesting study at the Mount Sinai Hospital. We have a room there the temperature of which can be reduced about ten degrees. We have not had enough cases yet to discuss it. If you have a high temperature in the beginning of the summer, say in June, you will find that infant mortality will be greater in July and August than it would be if June were not so hot. Those children get something in the beginning that reduces their vitality, and later on they cannot resist the heat and they die under even less heat as the result of the continued intestinal disturbances.

Dr. Wm. C. Woodward, Washington, D. C.: It is late in the day to begin to debate the relation of milk to infant mortality. The data pertaining to that subject are too numerous and too definite to permit of two opinions to any one who is familiar with it. That does not mean that there may not be other causes that contribute to infant mortality. It does not mean that weather conditions and housing are not contributing causes. I would like to offer, therefore, to any member of the Association who is interested in statistical studies, statements published in each of the annual reports of the Health Department of the District of Columbia from 1882 to 1902—twenty years—showing the number of deaths that occurred among children in the first two days of life, on each day of that period, and on each day of that entire twenty years among children during the first five days of life. You will find in the same table for each of the same days a statement of the mean barometer reading; mean relative humidity; the maximum, minimum and mean readings of the thermometer (exposed bulb), and its range; the mean reading of the wet bulb thermometer; the mean dew point; the direction of the wind at 8 o'clock A. M., and at 8 o'clock P. M., and its total movement in miles; and the total rainfall. If any one will undertake the analysis of these data, I will be glad to help him in any way I can.

Dr. T. B. Cooley, Detroit: I believe good milk is better than poor milk. But all the same, bad milk is not sufficient to point to as the reason for all infant diarrhea. We must find other causes.

Dr. Julius Levy, Newark, N. J.: When we started a rather extensive infant consultation service in Newark, many of the infants that came to us the first summer had diarrhea and continued to have it in spite of what we gave them. The next summer very few came with diarrhea, and the past two

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summers we hardly had a case of diarrhea. I believe the diarrhea at first was due to the fact that the cases had been fed improperly and with poor judgment. The main thing is to feed the infant correctly from birth. We have emphasized in our work that at the first approach of warm weather, feeding must be cut down. I don't believe it's best to wait for the indication of the bulb thermometer. Our experience in eliminating a larger proportion of diarrhea bears out Dr. Schereschewsky's conclusions. Bad results come when we do not adapt ourselves to the heat. If we so take care of our infants and so educate our mothers to adapt themselves to the increased heat, the heat will not have such a bad effect.

The Chairman: If there is no further discussion I will ask Dr. Schereschewsky to close.

Dr. Schereschewsky: I hope we have not been advocating anything that is retrogressive as regards the safeguarding of the milk supply. We must control our milk more rigidly than ever, and yet mothers and physicians need not think that the child is absolutely guaranteed from summer diarrhea as long as it is receiving only pure milk. There are other things that we must pay attention to, and especially must we pay attention to the heat in the home. If we can lay emphasis on the need for improved housing conditions and on the need for cool indoor temperatures we will be on the road to make great progress in solving the problems of infant mortality.

SESSION ON EUGENICS

EUGENICS

Saturday, November 15, 10.30 A. M.

CHAIRMAN

PROF. H. E. JORDAN, University of Virginia, Charlottesville

SECRETARY

PROF. ROSWELL JOHNSON, University of Pittsburgh

STATEMENT BY THE CHAIRMAN:

We are interested here today in the conservation of the most precious thing in the world—human life. The fundamental asset of a country is its child product. The world moves forward, as has been said, upon the feet of little children. Real national progress depends upon the quality, rather than the quantity, of the child product. An organism may be said to be the product of the interaction of its inheritance and its environment. In organic development both heredity and environment are absolute essentials; moreover, the action of the one complements that of the other. If the environment is baneful or deficient in any one of many possible ways, one expression of the effect will be in increased infant mortality. Similarly, if the inheritance be of low quality or defective the prevalence of infant mortality will be extended.

The Eugenic Section stresses primarily this factor of heredity as it affects infant mortality. The factor of environment acting either upon the unborn or newly-born infant, will be cared for by other sections of this association. Effective efforts for infant conservation must include attention to both, heredity and environment. It is one of the chief functions of our section to emphasize the importance of heredity.

The aim of this association is to save and bring to maturity all infants born. Paradoxical as the statement may at first seem, it is obvious that the more fully we succeed in realizing our ideal, the more need for our efforts in the future and the

greater in time will become the infant mortality rate. For weakness breeds weakness as like produces like. A weakened constitution, with a lack of "biological capital," more easily succumbs to death. About ten per cent of our population is estimated to be defective, i. e., grossly, obviously, seriously and universally admitted, defective, and so a racial menace. If we succeed in raising all infants, obviously some unfit stock will be preserved to reproduce its defective type, and work injury to the race. Theoretically from a cold scientific standpoint, a certain small amount of differential infant mortality must obviously be a good thing. But even if morally and socially allowable—which it is not—no discriminating procedure would be practical. For it is impossible by present means to distinguish absolutely and certainly in early infancy between the potentially fit and strong and the grossly unfit and weak. I want to state with all the emphasis I can command that we cannot lower our ideal. The same serious effort must be made to rear all infants. But we must at the same time recognize the fact that some unfit stock, reproducing in geometrical ratio, is thus saved to reproduce its defective type and to contaminate the race. This simply means that our efforts for infant conservation must be extended to embrace an interest also in potential parents and to seek means to prevent reproduction on the part of those racially seriously deficient. Our efforts may defeat our aims unless the mass of the babies we save are racially of sound stock.

Two prime morbid conditions with possibly important hereditary aspects contributing largely to the quota of infant mortality are syphilis and tuberculosis. We shall have these two subjects presented to us this morning by able scientific men, specialists, and I trust that they will be followed by full and free sympathetic discussion.

The Chairman: The first paper on our program is by Dr. Charles B. Davenport, of Cold Spring Harbor, Long Island, N. Y., on "Results from Experimental Breeding Bearing Upon the Problem of Infant Conservation." In order that we may have some discussion I will ask the secretary to read the abstract as it is printed in our program, since Dr. Davenport is not present.

The secretary read Dr. Davenport's abstract, as follows:

"The quickest way to produce desirable combinations in plant and animal breeding is by mating parents that belong to two strains whose best qualities it is desired to unite and

then by selecting a very few of the best individuals and destroying all the rest. Indeed, the animal and the plant breeder knows that he makes progress most rapidly the more extensive his elimination.

"Care in the selection of marriage mates is capable of doing much to increase the proportion of those who would be a credit to the race if they should survive, but good marriage selection alone is entirely inadequate to replace the beneficent agent of extensive infant mortality, i. e., from the standpoint of physical, social welfare; and as indicated by the results of experimental breeding. Among the "children of nature" we understand that infant mortality is fairly high and maintains a high physical if not mental status of the race. The elimination of the beneficent action of selection would probably cause deterioration of the average of such savage races, and the same effect within limits will follow among the more cultured strains also.

The Chairman: I have the pleasure of calling upon Mrs. John Hays Hammond for a brief discussion of this paper of Dr. Davenport's.

THE EDUCATION OF PARENTS IN PRACTICAL EUGENICS A FACTOR IN THE PREVENTION OF INFANT MORTALITY

Mrs. John Hays Hammond, Washington: Analysis of statistical figures shows that the heaviest toll of infant mortality is on the first day of life. The number of deaths from the first day is three times as great as for any succeeding day, is greater than the combined deaths of all other days of the first week; and those of the first week equal those of the remaining three weeks of the first month. The rate of mortality of the first month is double that of any other month.

Here, it seems to me, is an important problem in the prevention of infant mortality. How can the congenital biological capital or birth endowment of the infant be increased so that it will survive the first day, the first week, the first month, the first three months, under hygienic conditions? A study of death certificates gives very little information as to the cause of these first day, first week and first month deaths. For example, in 1910, an analysis of the causes of deaths of infants in the District of Columbia, gave congenital debility, inanition and marasmus for one-third of all cases, prematurity, malformations, infection of the cord, and convulsions for a like number, making a total of two-thirds of all infant mortality of the District of Columbia in 1910 due for the most part to congen-

ital conditions or to the inefficiency of the accoucher. From these figures it seems that over one-half of the white coffin procession in Washington is doomed to this fate before birth or in the hour of birth.

So appalling are these figures that I believe it behooves every mother to inquire, "Why did my baby die?" and every girl to ask, "Why do not all women have rosy, plump, dimpled, healthy babies?" The answer will be found in eugenics. Eugenics teaches that much of infant mortality is due to the fact that many babies are born with insufficient capital to meet the demands of life.

Congenital debility or insufficiency of inherited biological capital has been demonstrated to be due for the most part to the health of the parents, to the action of certain poisons, as syphilis, alcohol and tobacco, on the germ cells before their union or after their fusion to form a new being; to the employment, the nutrition and sanitary housing conditions of the mother during pregnancy.

These conditions are not only responsible for a large part of infant mortality, but it has been demonstrated that they are responsible for one-half of the fetal deaths, for one-half of the morbidity of children, and for a large part of feeble-mindedness and other forms of degeneracy.

It is not fitting that I, a lay woman, should recount here the statistical familiar details to you all. But, bearing these facts in mind, it seems to me that there is need of instruction in practical eugenics. I am so impressed with the need of such instruction that I believe there should be a great national movement for the promotion of practical eugenics. By this I do not mean an organization for scientific research. That work is being done adequately by the Galton Laboratory, by Dr. Davenport and his co-workers at Cold Spring Harbor and elsewhere, but I mean a national organization which will have for its purpose such popularizing of the facts of the science of eugenics that they can be incorporated into the real practical life of the people, particularly the principles of negative eugenics so admirably outlined by Dr. Jordan this morning. When young women are made to realize that the defects as well as the excellencies of their lovers will be reproduced in their children, that men of intemperate and immoral habits are likely to produce defective children, they will recoil from marriage with such men. The old adage, "Marry a man to reform him," will lose its force.

Woman, rather than man, has always been the conservator of race purity. In eugenics she will find an intelligent guide to

the selection of a father for her children, to the elimination of one-half of the morbidity of children, and to much of the useless waste of infant life. Young men and young women should be instructed in the laws governing reproduction, inheritance, infant welfare and child development. We need more women to do work such as Dr. Elnora C. Folkmar is doing in Washington, and Dr. Evangeline W. Young is doing in Boston in instructing groups of mothers and teachers. We need more twentieth century clinics such as Washington has in the Woman's Clinic Auxiliary, where health and the education of the actual and potential mothers is the chief end sought. We need a well-equipped out-patient maternity service in every community. We need more societies to discuss the problems of infant mortality. We were all glad to hear Dr. Holt tell last evening how many societies were studying these problems. But we need most of all federal support in this study. The eugenic hog has long been the subject of government research. The time is rapidly approaching when women will demand that the eugenic child be recognized as a worthy object of governmental expenditure. President Taft is to be commended for his interest in furthering the establishment of a Children's Bureau, and for the placing of a woman at the head of it. Now we need a Federal Department of Public Health. This, with its franking system, could carry the message of eugenics to every home. In the meantime the work of general education, the popularizing of the principles of eugenics, should be undertaken by a great national organization with headquarters at Washington. Such an organization should publish a journal at least monthly, should organize local round tables all over the country, should hold conventions in every state, should syndicate eugenic articles in the daily press. This is a big task. It is a very big task. But the sooner some such well organized effort is made by all the leaders in the movement, the sooner will infant mortality and child morbidity be practically eliminated.

GENERAL DISCUSSION

By a Member: I feel the cause of eugenics will not be benefited by confusing things that come from environment with things that come from heredity. We will understand the problem better if we realize that environment extends nine months before birth, and that the death of an infant on the first day of life is the result of environment that is within our control. The actual syphilis occurs during this environ-

mental period and is not a hereditary disease. If we will call it an infection occurring before birth, we will understand it better. It should not be classed among hereditary causes even though it is transmitted to succeeding generations. Tuberculosis is also environmental, even though it may exist before birth. Premature births, immature births that occur from toxin, make a large group. There are three toxins: tuberculosis, fatigue and syphilis. Fatigue as a toxin will be found most active in certain communities in the industrial cities of Connecticut and Maine. Those who have been interested in the briefs prepared by Louis Brandeis and Josephine Goldmark will realize the importance of that. It calls into play some activity that influences environment at birth. Infants die in the great mill towns of Maine and Massachusetts because the mothers work in factories until just before the baby is born, and often return seven days after the baby is born. So the same attack that would be made on the industrial problem would control the conditions existing before birth. Then it would direct our attention to the obstetric problem which exists at birth. It is very important to make that thoroughly clear in this section. We will lose all the confidence of scientific men if we confuse deaths that are the result of environment with those that are the result of heredity.

The Chairman: The remark that I made in my introduction was that syphilis and tuberculosis are morbid conditions, with possibly hereditary aspects. To get this before us we have solicited for our program papers on syphilis and tuberculosis. The point that must be kept clear is that eugenics rests upon the fact of heredity, and the Eugenic Section must be based on that principle.

Dr. Roy K. Flannagan, Richmond, Va.: Dr. Davenport seems to leave this matter not very clear. Apparently infant salvage seems to be discouraged by him. I would hate to believe that he means that, although it seems on the face of his paper that way. He says: "The elimination of the beneficent action of selection would probably cause deterioration of the average of such savage races, and the same effect within limits will follow among the more cultured strains also." I would accept it only as he says, as a mere statement of fact; but not as a discouragement of the idea of universal infant salvage.

THE RELATION OF EXPERIMENTAL SYPHILIS TO EUGENICS*

HENRY J. NICHOLS, M. D., Captain, Medical Corps, U. S. Army

(From the Department of Pathology, Army Medical School,
Washington, D. C.)

Syphilis is generally conceded to be the worst of all the infectious diseases in relation to the welfare of the next generation. Taken the world over, the only other specific disease which can be compared to syphilis, in this respect, is gonorrhea; and it is doubtful if the evil consequences of gonorrhea, such as sterility in the prospective parents and blindness in the children, equal the sum total of damage which is traceable to the spirochetes of syphilis, in the way of miscarriage and of the flooding of the child's body with such dangerous and resistant parasites. This is not the place to rehearse the tragedies of conjugal and inherited syphilis; but the confidences of the physician's office bring out the terrible reality of syphilis as a family disease and the testimony of school teachers, of employers, of directors of homes for feeble-minded children and of hospitals for the insane is eloquent in regard to the handicap under which congenital syphilitics face life.

In the strict academic sense of a unit character bound up in the chromosomes of the parents' germinal protoplasm, syphilis is not hereditary for generations; although there are authentic cases on record of the mechanical transfer of the parasites of the disease to the third generation. However, from the practical point of view of the welfare of the immediate offspring, syphilis is worse than a detrimental unit character because the parasites are not limited to any one organ or tissue but can and do permeate them all.

The dangers of the marriage of syphilitics have long been known and the medical profession has long insisted on safeguarding the health of prospective parents and that of their children by rules which covered the situation as far as existing knowledge permitted. Until recent years, however, our knowledge of syphilis has been far from satisfactory and our rules have frequently failed of their purpose. Within the last decade our knowledge of the disease has been greatly enlarged, especially by experimental and laboratory studies, and we are

now equipped with more efficient tests to determine the marriageability of persons who have had syphilis and are better prepared to prevent the advent of damaged successors.

Along with this increase of knowledge and partially dependent on it has developed the modern movement of eugenics, which is only a part of a larger movement for the control of nature and society for human welfare and happiness. The first essential of this movement is knowledge or science, for we cannot act with good effect if we are in the dark. The second essential is rightmindedness or the desire to use knowledge for human welfare. When evils are brought to light, right minded persons feel an irresistible impulse to correct them and the eugenics movement along these lines is one of the most encouraging signs of the times. In the words of the most illustrious living exponent of the larger movement we may say that the eugenics movement is "a sure indication of the eternal forces of human growth, of the God-given impulse implanted in mankind to make a better race and a better earth."

As has already been pointed out, the great recent advances in our knowledge of syphilis have come from the laboratory rather than from the clinic. Experimental syphilis is still a young branch of syphilology and much work remains to be done, but certain facts have been established and experimental syphilis has a claim for consideration because its findings, once established, are more reliable than those of the clinic. One of the best examples of the superiority of the experimental and laboratory method over that of simple observation of the patient is seen in the recent downfall of Colles' so-called "Law." It has long been taught as an outcome of clinical observation that an "apparently" healthy mother of a syphilitic child will not become infected by nursing or handling her child, because in bearing a syphilitic child she has become "immune" to the disease. It is usually true that the mother under such circumstances does not become infected, but as a result of experimental work and laboratory tests, we now know that she does not become infected, not because she is "immune," but because she herself has the disease, usually in a so-called "latent" form. That is, she is only "apparently" healthy and later on will pay toll to the hidden parasites. The same is true of Profeta's so-called "law" which relates to the "apparently" healthy child of a syphilitic mother. The child is really not immune and really has the disease and will suffer accordingly. There are many other aspects of the disease which can be thoroughly understood and intelligently

handled only by the production of the disease in animals and by the study of it under the rigid conditions of scientific experiment.

THE POSSIBLE AFFINITY OF SPIROCHAETA PALLIDA FOR THE REPRODUCTIVE ORGANS

What is the explanation of the almost deadly certainty that a syphilitic husband will infect his wife and that some, at least, of their children will be born with the disease? As a result of recent experimental studies in syphilis, we know that the disease is a septicaemia in its early stages. The virus is circulating in the blood and has been recovered in as high as 80 per cent of cases in this period (¹). It would not be surprising, therefore, that in this period the virus should be transmitted in the marriage relation. But this is not the stage in which the damage is usually done; more often it is later in the disease, when the future father thinks he is cured, that marriage occurs and the disease is passed on. Experimental syphilis has something to say on this subject and undoubtedly will have more to say in the future.

It cannot be stated as an established fact that *Sp. pallida* has an especial affinity for the reproductive organs, but there are several evidences of this insidious possibility. The most fruitful part of experimental syphilis has followed the transmission of the disease to the rabbit and this field of work remained limited until it was discovered that the sexual organs are the best places for the multiplication of the parasites. It is a fact also that an intravenous injection of the rabbit results first and sometimes only in lesions of the scrotum and testicle. Such observations are suggestive to say the least. Along the same line of thought, Uhlenhuth has called attention to the fact that the virus of dourine, a sexual disease of the horse, multiplies best in the testicle in experimental inoculations of the rabbit, either direct or intravenous. Again, Neisser says that in infected monkeys the testicles are more highly inoculable than milk or bone marrow. These observations seem to indicate that infection of the reproductive organs is not merely a part of the general flooding of the body with the parasites, but that the parasites actually have an affinity for these tissues. If this is so, we may be dealing with a character of the parasite which has been acquired in order to perpetuate itself and if this is the case the disease becomes just so much harder to combat. The solution of this problem, which is a very practical one, can come only by the experimental method.

Neisser⁽²⁾ has reviewed this subject up to 1911. Spirochaetae have never been found in the seminal fluid by direct microscopical examination, but inoculation experiments have revealed their presence. Neisser himself failed to infect monkeys in seven trials with fresh seminal fluid from cases in various stages of the disease. Hoffman failed in three trials with fluid from cases of 2½ months, 11 months and 18 months standing. Finger and Landsteiner were successful in two cases. In one the patient had had syphilitic orchitis so that this case can be ruled out. In the other case spermatic fluid was obtained from a case in the secondary stage by expression of the seminal vesicles and prostate; it was centrifuged and injection of the centrifugate into a monkey resulted in a definite syphilitic lesion. The fluid was apparently perfectly normal and contained active spermatozoa. This result is a distinct contribution to our knowledge of syphilis in relation to eugenics. It also raises the question if the male sexual element does not actually carry the virus.

Since 1911 the only work recorded in this line has been done by Uhlenhuth and Mulzer⁽³⁾ who have confirmed Finger's observation in so far as relates to the infectiousness of the seminal fluid in the secondary stage. They obtained seminal fluid from an early case with relapse after salvarsan and successfully inoculated three rabbits. The entire fluid was used. Seminal fluid from the same case after treatment failed to infect the rabbit.

It will be seen from these experiments that the seminal fluid of secondary cases is infectious. We are still uncertain about the seminal fluid of later cases, but clinical suggestions are strong here and it remains for experimental syphilis to say the final word. We are also in the dark about the mechanism of infectiousness, whether the virus is in the fluids or in the male elements themselves. The entire subject of the relation of the spirochaetae to the female reproductive organs is untouched. In the solution of these problems, little headway is to be expected, except by the experimental method.

Uhlenhuth and Mulzer have also taken up the difficult subject of experimental hereditary syphilis by breeding syphilitic rabbits. The great practical difficulties of this subject are apparent, but Uhlenhuth and Mulzer have already had some success. They have shown that there is no immunity in young born from syphilitic females and that the young may be infected in utero by producing the disease in the mother. A continuation of this work will probably yield very valuable

results. If known to our misguided friends who oppose the experimental method, this work will also probably provoke the usual protest. This protest can be met by one question which has never been satisfactorily answered by the "antis" and until it is so answered, it must remain as a stumbling block. The question is, how many rabbits is one human child worth?

THE RELATIONS OF SYPHILIS TO THE FAMILY

The relations of syphilis to marriage and the fruits of marriage may be outlined as follows:

1. The husband has syphilis. He infects the wife and she infects the embryo and has a miscarriage or an infected child. This is probably the most usual occurrence, but as stated above it is possible in some cases that the father infects the ovum and that the mother is secondarily infected.

2. The husband has syphilis. He infects the ovum without infection of the mother. This is very rare, if indeed it is possible.

3. The wife has syphilis and infects the child in utero; the husband may be infected or not.

4. The wife is infected after conception and infects the child.

In any case the result seems to be the same, the child is infected and suffers accordingly. It may be said that in this outline should also be included the more cheerful statement that either the father or mother may have syphilis and the child may be healthy. This may be true of the later children, but in a given case any such statement, unless backed up by the results of modern methods of examination, should be heard with scepticism. If a child is born to syphilitic parents and is not all broken out with sores on the skin, it is no sign that the child is healthy. The evil consequence of syphilis may not become evident for years afterward, and who has followed these "apparently" healthy children for a sufficient length of time to speak with certainty of the clinical results? The only sure way is to use the laboratory tests available at present and the more they are used, the more widespread the disease appears in the family. We frequently hear a syphilitic father say that his wife and children are healthy, but on examination we rarely fail to find evidence of the disease in the wife and in one or more of the children.

THE FITNESS OF PERSONS WHO HAVE BEEN INFECTED FOR
MARRIAGE

When is a person who has had syphilis fit to marry? In other words, when is syphilis cured? If either a man or woman still has syphilis, we cannot safely give consent to marriage, because there is a distinct risk in either case that the offspring will be infected. We cannot say that this will always happen, much less can we say that it will not happen. The chances are all in favor of its occurrence.

Under the older rules, if a syphilitic had had more or less continuous treatment for one or two years and had shown no external symptoms for two or three years more, he was allowed to marry. It has been a great disappointment to find that a large number of such cases were not really cured and that they were not really fit for marriage. In fact, in the light of our modern tests for the presence of the disease, we have reason to believe that the majority of cases treated in the most approved way by mercury and potassium iodide were not really cured (*). The disappointment over the failure of salvarsan to produce permanent effects in a small number of doses does not compare with the disappointment over the failure of our historical remedy—mercury—even when given for years, to really cure the disease in the majority of cases.

At present we have four tests which have been contributed by experimental and laboratory work for the detection of the disease. These tests cannot safely be disregarded in determining the marriageability of persons who have had syphilis. These are as follows:

1. A series of Wassermann reactions.
2. The provocative Wassermann reaction.
3. The luetin reaction.
4. Examination of the cerebrospinal fluid.

If any of these tests are positive, I believe that consent should not be given to marriage, because a positive result in any of these tests, according to our present knowledge, indicates the presence of living parasites. In regard to the Wassermann reaction there is a tendency on the part of some clinicians to regard a positive result in late cases simply as an evidence of past infection, like the persistence of the Widal reaction after typhoid. In my opinion this is an entirely mistaken view and one full of danger. Everything we know about this reaction indicates that it is a symptom of the disease and it should be regarded as such. It is not strange

that the other more comfortable view should be held, because, unless we hold such a view, we are compelled to admit that the older methods of treatment failed to cure in a majority of cases and even with salvarsan we are compelled to admit that some cases are practically incurable. But it is the duty of scientific medicine to seek and to state the truth and while the clinician in daily touch with the hopes and fears of the patient may be inclined to take the easiest route, it is the duty of the laboratory to stand by the facts as it knows them.

It is not necessary to enter into a detailed discussion of these tests here, but they should be used to supplement each other. I have compared the results of the first three tests in a series of late cases in the following table:

	Wassermann reaction	Provocative Wassermann reaction	Luetin Reaction
1.	—	+	+
2.	—	+	+
3.	—	+	+
4.	—	+	+
5.	—	+	+
6.	—	+	—
7.	—	+	—
8.	—	+	—
9.	—	—	+
10.	—	—	+
11.	—	—	+
12.	—	—	+

It is evident that we cannot safely rely on a single test; we must use all the means at our disposal. We must insist on a clean bill throughout if practical advance is to be made in eugenics. The standard here outlined is a severe one and many candidates will fail to measure up to it, but in view of the nature of the disease as already outlined, it seems to me the only safe standard. The requirement of an examination of the reproductive fluid is probably an impracticable measure, but it is not out of the bounds of possibility.

On the other hand it would be a great mistake to imagine that syphilitics are doomed because we find evidence of a hidden infection in so many cases. We have good reason to believe that a majority of the human race have tuberculosis at some time of life and in most cases without even knowing it, and syphilis in many respects is no worse than tuberculosis. In addition we have means of treatment. We can control the disease even if we cannot thoroughly eradicate it in late cases. Many syphilitics do the hardest kind of physical

and mental work and are fit for all the activities of a useful citizen with the one exception of the perpetuation of the race. For this function they should be made to qualify.

In my experience most men, under these circumstances, are right minded. They are not willing to experiment with human flesh and blood. They are willing to forego marriage—for the time and entirely if necessary. Of course, there are others who are not so mindful of duty and they should be forced into the same position by the combined efforts of parents, physicians, clergymen and general public opinion as seen in the eugenics movement of today.

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- ⁴ Craig and Nichols, Bulletin No. 3, War Dept., S. G. O., 1913, p. 130.

DISCUSSION

By a Member: I would like to ask the Doctor's opinion as to the inoculation of various serums for the prevention of disease, and as to what he thinks might be attributable to the inoculation of various toxins and serums. Investigations in the Agricultural Department show that cattle are shipped from Michigan to New York with these diseases; and we think a great deal of what the individual is supposed to be responsible for is attributable to the inoculation of diseases from the lower animals.

Dr. Nichols: I can answer this question in the negative absolutely. I do not believe that the virus of syphilis is transmitted by the injection of any vaccine or toxin. It is a very fragile organism and will not stand much manipulation. Most of these vaccines have antiseptics in them and it would not be possible to transfer the virus in those. In regard to smallpox, the cow is not susceptible to the disease as far as I know, certainly not naturally; and it would be difficult for that virus to get into smallpox vaccine. I have no sympathy with this criticism or question.

Dr. Leon I. Cole, Madison, Wis.: Our chairman has said that eugenics deals with heredity. The point that struck me is the difficulty in distinguishing just what is hereditary. I think Dr. Nichols very appropriately placed syphilis as a transmissible disease. I think it was he who said, "A disease that is trans-

mitted before birth, but is not inherited in the strict sense—in the sense that it acts directly upon the germ cell.” The border line, it seems to me, is very indistinct, and this has been brought out in experiments which have been recently reported. The general facts have been known to physicians, but such scattered facts are not readily accepted by biologists because they lack the proof that can only be obtained from experimentation. I refer to the effects of alcoholism. You are undoubtedly familiar with the general effects as observed by the physician. The effects of alcoholism of the mother upon the developing child are too obvious to require further remark. Recent careful experiments have shown that the alcoholism of the male in the guinea pig has a very marked effect upon the offspring produced. Not only are there many cases of failure of birth, failure to complete the term, but many offspring are born dead or die soon after birth; and comparatively few are normal. We can understand this because it has been proved with alcohol taken into the system. Alcohol taken into the system is soon in the blood and in the reproductive organs, and it may have a direct effect upon the forming of spermatozoa. The most interesting thing is that they have been carried to the second generation, and although these defective young that are produced by alcoholized males are not treated with alcohol, they nevertheless produce defective young. Here we have what looks like the true inheritance and the inheritance of an acquired characteristic. It is the inheritance of an effect that has been produced upon the germ cell. The effect of poisons and diseases as Dr. Nichols said in the case of syphilis with respect to the sexual glands has a most far-reaching influence. This line of facts is entirely distinct from the transmission of the germ of the disease down through successive generations. Going back to Dr. Davenport’s paper I think in fairness to him I should interpret his abstract as meaning to point out merely what was perfectly obvious from the breeder’s point of view, not drawing any necessary conclusion as to the course events must take in child conservation or in eugenics. No doubt he is right with regard to the effects of universal conservation. But there is the ethical side which cannot be lost sight of. I think this can be defended as a necessary part of eugenics just as well as that of obtaining normal healthy offspring. Fortunately, in addition to any volitional or any differential mortality due to any cause, there are certain of these things which tend to correct themselves. This is true in conditions such as alcoholism. In experiments that have been carried on with rabbits we have

found that the alcoholized male decreases his probability of producing offspring under certain conditions, so it is a hopeful sign that we have what may be called compensatory regulation.

Dr. F. W. Pinneo, Newark, N. J.: There are two or three points in Dr. Jordan's admirable remarks I wish to discuss briefly. We consider that every baby born has an equal right to its life with any other; and yet we feel that we have a racial responsibility. Where is this to be exercised? Certainly not upon the individual after birth. He is a living being and has his rights with the rest of the race. It was to have been exercised before; it is therefore preventive medicine. We cannot blame any individual that he was not well born. He had a right to be well born. Our problem is to elevate the status of every living human organism, and it may be well to state that there should be no discrimination among those who were born. Where is this application of eugenics to be made? It must be in the limitation of the right of the originally unfit to progeny. The first step will be the elimination by those who are physically unfit. Since some of those diseases formerly considered hereditary are now being grouped as infectious they must be viewed from a different standpoint. Tuberculosis came under specific treatment when Koch made his discovery. Syphilis is now viewed as an infectious disease. We, therefore, consider eugenics in its practical application as including not only hereditary factors, but environmental factors also.

TUBERCULOSIS AND HEREDITY

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Not so very long ago the view prevailed almost universally that pulmonary tuberculosis was an hereditary disease, but when Villemin demonstrated that tuberculosis could be transmitted by inoculation from one animal to another, and when from Koch came the announcement of the relation between the tubercle bacillus and the disease, there was a violent and immediate change of opinion. The importance of contagion in the causation of tuberculosis at once assumed so dominant a position in men's minds that other factors were more or less overlooked, and with the proof that this is a bacterial disease, it became clear that the earlier views concerning its hereditary transmission were erroneous, or, at least, required modification. In fact, doubts were raised as to whether the disease could be transmitted at all from parent to offspring and the expression "one is not born tuberculous" came to represent the opinion prevailing widely in medical circles in spite of an occasional voice of protest such as that of Baumgarten.

With the rise of tuberculosis campaigns, with the multiplication of sanatoria, and of centers for visiting nurses, and with the increasing intensiveness of research upon tuberculous diseases and tuberculosis problems, it has gradually become evident that infection with the tubercle bacillus is by no means the only important factor in the production of clinical tuberculosis. We have learned that there are very few adults who have not received tubercle bacilli into their systems, and inasmuch as most of us do not suffer clinically from tuberculosis, it is clear that something more than mere infection with the bacillus is needed in order that the disease may develop in an infected person. The study of the etiological factors additional to infection has received a great deal of attention during recent years. We know that when large numbers of tubercle bacteria enter the system, the danger of becoming diseased is greater than when a few bacteria are acquired, and we therefore believe that prolonged and intimate contact with a careless tuberculous subject increases the danger for the other members of the patient's household. The increased chances both for infection and for repeated infection

are supposed in large measure to account for the high rate of consumption which occurs in "tuberculous families." There is much evidence to support this view, and there can be little doubt that prolonged and intimate contact with a careless consumptive is dangerous. There is, however, a decided tendency evident at present to recede from the prevailing popular view as to the excessive danger from association with tuberculous patients. Tuberculin skin tests have shown that primary infections usually occur in early life, and there is an opinion current that symptoms developing even much later are due to renewed activity of an infection which has lain latent rather than from a fresh infection. (See Bartel, *Wiener Klin. Wchnschr.* Vol. 6, No. 13, p. 485, 1913; Baldwin, *Bull. of the Johns Hopkins Hospital*, 1913, Vol. 24, No. 269, p. 224; Pollak, *Beiträge z. Klin. der Tuberkulose*, 1910-1911, Vol. 18-19, p. 473.)

In the second place there is some evidence to indicate that some tubercle bacilli are more virulent than others. Thus Pollak (*Beiträge z. Klin. der Tuberkulose*, 1910-1911, Vol. 18-19, p. 373), found that out of forty-five infants, those dying of tuberculosis had in the large majority of instances received their infection from patients with severe or fatal forms of tuberculosis, while those with milder infections had received their bacteria from patients with less severe tuberculosis.

In the third place most of us are fully persuaded that the vitality of the individual is, of all factors, the one which is most important in determining whether or not the individual will become tuberculous. The vitality of the individual can not be greater than is allowed by the original endowment from his parents or ancestors, but his patrimony may be either conserved or squandered. Most of us are able, at our best, to withstand the assaults of the tubercle bacilli which we receive, and although the vast majority of us harbor the germ at one time or another we know from numberless examples that the danger is slight except for those whose vitality becomes considerably depleted. The causes of lowered vitality have thus come to assume a prominent place in the crusade against tuberculosis, and many of the more obvious causes have been recognized and attacked. I need only remind you of the close relation existing between the tuberculosis crusade and the great movements to improve housing conditions, work-shop conditions, factory conditions, etc., and to the campaigns of education in regard to the dangers of impure air, underfeeding, exposure, alcoholism, and even of worry and of exhausting hard work, to indicate to you how hydra-headed the tuber-

culosis problem has become since the relation of personal vitality to infection has come to the front.

It is probable that none will deny, and few belittle, the very great importance in the spread of tuberculosis of the etiological factors just outlined, but it is possible that undue emphasis may be placed upon them, or, at any rate, that other factors may be underemphasized. From another source besides those mentioned, evidence has been brought to show that the danger from contact with tuberculous patients has been exaggerated. Werner (*Beiträge z. der Klin. der Tuberkulose*, 1910-1911, Vol. 18-19, p. 355) has studied the mortality statistics of the rather isolated community, Lippspringe, for the century from 1801 to 1909. The sanitary conditions in this community were poor, and from 1833 up to the present, great numbers of tuberculous patients have visited Lippspringe, residing, until within recent years, in the homes of the inhabitants. In spite of this prolonged contact with tuberculous patients the death rate from tuberculosis has fallen from 31.2 per cent of the entire death rate in 1831 to 23 per cent in 1906-1909. Between 1906 and 1909, thirty-five out of every ten thousand inhabitants died of tuberculosis. He concludes that the danger from contact is much less than is commonly supposed, and that the personal disposition or diathesis is of great importance. Bartel (*Med. Klin.*, 1913, Vol. IX, No. 6, p. 217) has recently made a study to determine the possible relationship between an hereditary lymphatic diathesis and a tuberculous diathesis and his study met with some success. That there is some relation between structure or function and a tuberculous tendency seems evident also from numerous reports which show that young children and adults over 40 years of age are especially selected by tuberculosis, and that males are much more often attacked than females (See Grunberg, below).

Knopf's observation (*Med. Record*, N. Y., Vol. 83, No. 5, 1913, p. 185) that tuberculosis is commoner among the younger members of large families than among the children born earlier is along the same direction. It seems then that predisposition or diathesis deserves more attention than it receives today. While recognizing that one's vitality may be reduced by accidents, or by one's manner of living, there is also reason to believe that not all of us start life with equal powers for resisting invasion by tubercle bacilli. In other words, some of us inherit a diminished vital power of resistance for tuberculosis. The relation between tuberculosis and heredity has been approached from three points of view in current medical

literature, and it is claimed that the distribution of tuberculosis can not be understood unless the importance of hereditary diathesis is properly appreciated.

CONGENITAL TUBERCULOSIS

Baumgarten has long insisted that in a small proportion of cases the tubercle bacilli pass from a diseased mother through the placenta to the foetus, remain latent in the offspring often for many years, and eventually give rise to clinical tuberculosis. His theory is not generally accepted as an explanation of any large number of cases. In a recent review Harbitz (*Münch. Med. Wchnschr.* Vol. 60, No. 14, p. 741, 1913) claims that hardly more than twenty cases of congenital tuberculosis, out of one hundred and twenty which have been reported, will stand the test of careful criticism. Nevertheless recent experimental work by Landouzy and Laederich (*La Revue internationale de la tuberculose*, 1912, Vol. 21, pp. 25-32) shows, first, that tuberculous male guinea pigs are usually sterile, but the tubercle bacilli are present in their seminal discharges; second, that tuberculous females may give birth to tuberculous offspring, and third, that tuberculous offspring may present none of the clinical features of tuberculosis until some time after birth. For example, a guinea pig from a tuberculous mother was underdeveloped at birth, but appeared otherwise healthy. It was killed and examined at the age of three months, and showed definite tuberculous granulations in the lung. The conditions of experiment were such that there could be no possibility that the infection arose from the tuberculous parent after birth. At the same time the same experimenters found that a much greater proportion of the offspring became tuberculous if the young guinea pigs, rabbits, etc., were allowed to remain with their tuberculous mothers subsequent to birth. In this connection the high frequency of tuberculous lesions in the placentas of tuberculous mothers is to be remembered. It seems to a reader of recent literature that the possible bearing of Bartel's "lymphoid stage" of tuberculosis upon the problem of congenital tuberculosis has not been studied as fully as it should be.

PARENTAL TUBERCULOSIS INJURES OFFSPRING

That parental tuberculosis profoundly influences the offspring has been shown within recent years. The experiments of Landouzy, referred to above, were taken by him as strong evidence that parental tuberculosis has as baneful an influence upon the offspring as either syphilis or alcohol. In his cases

even the non-tuberculous offspring exhibited a much higher rate of mortality, the death rate for young guinea pigs, rabbits, and dogs from tuberculous mothers being as high as 41.9 per cent of the offspring. In many instances the animal presented definite anatomical causes for the death, but in a few, the animal was well developed and healthy looking and there was no obvious cause for death. The survivors were often below the normal level of weight and the later development, especially of the young guinea pigs, was retarded, sometimes permanently. In these instances careful postmortem examinations and inoculations failed to reveal in the offspring evidence of the tubercle bacillus. Some of his cases suggest that parental tuberculosis may be responsible for cardiovascular dystrophies in the offspring or for other anatomical dystrophies, and occasionally for functional difficulties not associated with anatomical change.

Similar to the experimental evidence of Landouzy is the clinical evidence obtained by Grunberg (*Hérédité et Tuberculose*, etc., Thèse., Paris, 1912) in a critical analysis of five hundred and sixty-eight families carried through three generations. Out of two thousand and five offspring, six hundred and eight-nine were especially examined for the determination of any abnormalities. In this very interesting study, Grunberg determined the relation between tuberculosis in one or both parents or in earlier ancestors and the mortality and morbidity of the offspring. Four hundred and seventy-two of his families were tuberculous. Of the tuberculous offspring less than five per cent came from parents free from tuberculosis. In other words, over ninety-five per cent of the tuberculous offspring had a tuberculous parentage or ancestry. The frequency of fatal tuberculosis in the offspring ran fairly parallel with the degree of relationship between the child and the tuberculous ancestors. Paternal tuberculosis was apparently as serious as maternal in its effect upon the offspring. Less than three per cent of his families were afflicted with non-pulmonary forms of tuberculosis and in these instances the influence upon offspring was much less than in the pulmonary forms. It is interesting to note that pleurisies or tuberculous bronchitis occurring in the parent subsequent to the birth of the child was associated with little or no danger to the offspring, while the same diseases in one or both parents even years before the birth of the child, conferred upon the child a definitely increased danger either of tuberculosis or of one of the tuberculous dystrophies. This is not what would be expected if the parental predisposition were an hereditary

characteristic as the physical attributes are. If acquired characteristics are not inherited, a parental predisposition towards tuberculosis should be transmitted to the offspring as definitely by predisposed parents who have not had pleurisy, etc., as by those who have been actively tuberculous. If further evidence supports Grunberg's observations in this regard, the presumption will be strengthened that tuberculous predisposition in the offspring is not truly an hereditary characteristic, but is due to the fact that the parental reproductive cells were rendered abnormal by the direct action of the tuberculous process in the parent.

In addition to a high increase in the death rate from tuberculosis among offspring of tuberculous families, Grunberg shows that there is also a high increase in the death rate of infants and of the young from other causes than tuberculosis, especially from non-tuberculous, pulmonary infections. Moreover the offspring are peculiarly apt to suffer even in later life from maldevelopment, anemia, cardiovascular disease and nervous troubles. Even the offspring who do not manifest clinical tuberculosis show a much higher percentage, age for age, of positive von Pirquet reactions.

From Grunberg's study it seems fairly clear, first, that tuberculosis is very much more apt to occur in a person, one or more of whose ancestors or parents suffered from pulmonary tuberculosis and that the chances of acquiring tuberculosis are greater in proportion to the numbers of ancestors who were tuberculous, and the nearer the relationship. Second, that pulmonary tuberculosis in ancestors is much more serious for the offspring than non-pulmonary tuberculosis. Third, that tuberculosis in parents and to a less degree in ancestors, greatly reduces vitality of even the non-tuberculous offspring, so that while their birth rate is higher, their infantile death rate is much higher and dystrophies and cases of under-development are frequent among them.

TUBERCULOSIS AND PHYSICAL DETERIORATION

A point of view differing from that of Baumgarten, and equally from that of Landouzy and Grunberg, is advanced by Karl Pearson, of London (*Tuberculosis, Heredity, and Environment*, Dulau & Co., London, 1912). The main point that Pearson makes is that taking into account the whole subject of tuberculosis and allowing that infection is almost universal, it must, nevertheless, be recognized that tuberculosis does actually follow the lines of heredity. Everybody being

exposed to tuberculosis, that is, receiving doses of the germ from time to time, only those become tuberculous in whom there is the hereditary predisposition. He compares the heredity of different physical characters with the apparent heredity in tuberculosis and concludes that the two sets of phenomena follow the same laws and are therefore most logically explained on the same ground. He finally concludes that tuberculosis most prominently affects those families which he would rank as physically unfit. While not denying that otherwise healthy individuals may become tuberculous, the great majority of fatal cases, according to him, occur in families presenting some one or more stigmata of deterioration. Pearson has not shown, however, that inferior resisting power against tuberculosis is incompatible with the possession of other attributes which are of very great value to humanity.

We need not enter into a detailed consideration of the conclusions which Pearson draws with regard to the modern warfare upon tuberculosis, but I will merely emphasize the fact that Pearson considers that tuberculosis is especially apt to attack an already inferior family stock, while Landouzy and Grunberg indicate that the tuberculous process itself produces inferiority of the stock in generations subsequent to the original infection.

I have endeavored in this paper to place before you a brief account of those aspects of tuberculosis investigation which are most closely related to eugenics and heredity. Pearson, Landouzy and Grunberg have introduced into the study of tuberculosis new methods which should lead to important advances in our knowledge of tuberculosis, and which should induce us to study this subject not only from the medical, the sanitarian, and sociologic points of view, but from the broadest biologic standpoint. It is possible that the newer studies may eventually lead to a modification in the attack upon tuberculosis. If the opinion should become established that families presenting a high tuberculous mortality owe this high death rate to the disastrous results of infection and environment, the activities of philanthropists would certainly be turned in a different direction from that which would be pursued if the theory should prevail that the tuberculous families are, as Pearson maintains, fundamentally inferior, and that they should be discouraged from propagation.

On the whole, work such as that of Landouzy and of Grunberg impresses one greatly with the idea that the tubercle bacillus is disastrous far beyond its direct infections and one is inclined to withhold acquiescence in the views of Pearson

until further and stronger evidence is brought forward in support of his hypothesis. Recent work tends rather to indicate that a modified form of inheritance is of importance in accounting for the increased susceptibility of offspring of tuberculous parents for tuberculosis, but it still seems to be doubtful whether this is a true family inheritance, which will be transmitted from generation to generation. Rosenau and Anderson (U. S. Hygienic Laboratory, Bull. No. 36, 1907, and No. 45, 1908) showed that if female animals were rendered hyper-susceptible to proteids or bacterial substances as the result of inoculations, the offspring of these females were also hyper-susceptible. Krause (Bull. of the Johns Hopkins Hospital, 1911, XXII, No. 245, p. 249) and Austrian (Bull. of the Johns Hopkins Hospital, 1913, XXIV, No. 267, p. 141) have taken this matter up with regard to one of the products of the tubercle bacillus, and their very interesting experiments show that the offspring of sensitized animals are also sensitive. It seems possible that this has an important bearing upon the apparent inheritance of a sensitiveness for tuberculosis in the offspring of tuberculous mothers, and it may well be proved that when the parent has been sensitized with tubercle bacilli the offspring will be sensitized exactly as when the sensitizer is tuberculo-protein. Recent work upon anaphylaxis shows the close relationship between anaphylaxis and infection. While it is still far from being a matter of demonstration it will not be surprising if future investigations should bring to light some necessary inter-relationship between sensitization through infection with the tubercle bacillus and hyper-susceptibility of the offspring towards the same organism.

DISCUSSION

Dr. Paul Paquin, Asheville, N. C.: This most excellent paper by Dr. Marshall is so comprehensive in its text and its suggestions of scientific and practical nature that in its discussion one can scarcely touch even the high points, and to touch these is a task of hours even for the best informed. So, I will limit my remarks almost entirely to some of the questions raised in his first propositions.

We read there and we learn now from the able presentment of Dr. Marshall something about the tendencies to determine tuberculous infection and to arrest the tuberculous processes by considering the condition of the patient.

Regarding "Infant Mortality" this brings us face to face with the question which I have designated as the "Border-

land of Tuberculosis,"—that condition in which a child is not yet actively tubercular but on the frontier. It is a stage of childhood which can be surveyed in due time and with sufficient accuracy to afford those involved prophylactic measures, more or less effective, early enough to save life at least, and generally to lay the foundation for endurance and good health, if not indeed, immunization against tuberculosis,—than which affliction perhaps none destroy more lives.

Of the four curses which are tearing down the body and soul of the white man: war, leutic affections (I include here syphilis and gonorrhea); alcoholism; tuberculosis; all leaving in their respective paths wreckage of brains, morals and bodies, maybe tuberculosis is not the worst, but surely it is the most prevalent disease of a ruinous nature, affecting about 80 per cent of the white people of the earth, incapacitating more or less about 10 per cent and consigning to the grave prematurely not less than 6 per cent every year.

Among the physical signs of the "Borderland of Tuberculosis" in children are to be noted in particular; fitful and capricious appetite, irregularity of the nature of the stool with fever and pains, intestinal stasis, particularly the colon, frequent colitis—a very mean factor—indicanuria, habitual headaches, frequent nose-bleed, early and excessive brightness of intellect, recurrent tonsillitis, adenites in various localities, lassitude without undue exertion, frequent listlessness, seeming indifferent to duties (often when at heart desirous of performing them), over activity of hair growth, irregular stomachal and intestinal dyspepsia, pale and pinched features, disinclination to play, inclination to inactivity, occasional flushing of the cheeks, unaccountable subnormal temperature (more common in the morning), pleurisy, occasional aching in one or more identical spots in the front or back of the chest—more usually in the upper third, under the shoulder blades and at the base of the lung,—hypertrophied tonsils, adenoids, lymphoid growths of the throat, hacking coughs with or without expectoration, grayish glairy sputum (even in small specks), spitting of blood, even in minute quantities; habitual scraping of the throat, chronic respiratory catarrh, sweating without natural causes (night or day, general or localized), habitually or irregularly fast pulse, clammy or sweating hands or feet, susceptibility to colds under slight provocation, certain abnormal chest conformations and deficiencies, as contractions and dented muscles between the ribs; slim and flabby muscles, dry skin, respiratory restrictions, lung inelasticity, reduced expansions, abnormal breathing, short breathing, etc. I have

given these irrespective of order. Perhaps none of these indicate tuberculosis positively, but all, separately, and groups of them in particular give warnings which should be heeded.

These symptoms and the special diagnostic tests cover three questions: First, whether or not the system is merely fit soil for the tubercle bacilli and other germs which follow them; second, whether any of these parasites have already begun their growth without suggestive external manifestations; third, whether or not tuberculosis activity exists in any degree.

The physical examination and other analyses of the sort to decipher the symptoms should be complete and as a rule precede the specific steps.

Having determined the "Borderland of Tuberculosis" the next step is to apply prophylactic remedies. What are they?

First. Suitable cellular nutrition—the foundation of natural resistance to disease.

Second. Immunization. I will not dwell on nutrition or its problems, but pass on at once to the questions of immunity, about which Dr. Marshall also spoke most interestingly and usefully.

Since the vast majority of civilized humans harbor the tubercle bacilli in their system and only comparatively few succumb to them, there must be in the body of man some forces to destroy these germs, or to neutralize their poisonous effects or at least hold them in check. These forces are they which the interested scientists of the world are trying to harness by vaccinating human beings against tuberculosis.

There have been recognized as immunizing bodies, certain sera and tuberculin agents, whose action is expected to be bacteriolitic, that is, capable of dissolving tuberculin bacilli *in vivo*. The latest of these brought out seems to be that of Von Ruck, which he calls a vaccine, and which he has used, it seems, lavishly on several hundred children and on early cases of tuberculosis with effective results. He and Dr. Julian, of Thomasville, N. C., claim to have vaccinated successfully in the last two or three years not less than four hundred young individuals.

In these cases Dr. Von Ruck claims, and illustrates his position by micro-photographs and prints, that he has, by one to three or four injections of a tuberculin vaccine caused his children's and patients' blood to become lytic to the bacillus, that is, that the serum in the blood dissolves the tubercle germ and that therefore they cannot live in it.

Now, ladies and gentlemen, needless to say that if we had as effective a vaccine against tuberculosis as against small-

pox and it were applied generally in infancy, we could soon master the disease absolutely. It appears to me therefore that the association should investigate the claims of those who say that they can immunize human beings against tuberculosis, so that, if found true, humanity shall be in a position to be benefited, and, if false, the facts should be published broadcast.

THE EDUCATION OF PARENTS IN PRACTICAL EUGENICS A FACTOR IN THE PREVENTION OF INFANT MORTALITY

EVANGELINE WILSON YOUNG, M. D., School of Eugenics, Boston

Galton's definition of eugenic makes this science more inclusive than would some of his disciples who would limit the use of the term to heredity alone in the technical interpretation of the word. It is quite clear that the founder of this science in thinking of its practical application to humanity intended to include in his definition certain environmental factors. The term practical eugenics, therefore, is used to cover that twilight zone where heredity and environment meet and where these two factors are not clearly differentiated in the minds of those who are untrained in scientific niceties. Theoretically, heredity and environment are absolutely separable, but in a working program adapted to popular needs of parents it is expedient that we ignore fine distinctions in the use of terms, and make the subject as vital and practical to everyday human experience as we can.

The average intelligent parent in America today is interested in eugenics. He wishes to be informed about it, especially in regard to its human import. If we attempt to satisfy this interest in terms of guinea-pig algebra, he will have nothing of it. This we cannot afford to do, for this average intelligent parent, by the way, is the medium through which eugenic ideals are to be realized, if at all, and we need his cooperation and good will; so we must not make the subject too technical for him to understand. Practical eugenics, then, for parents, must include instruction in the truths of both heredity and environment. Obviously, men and women already mated, and in the stress of the cares of bringing up children already born, need instruction chiefly with regard to environmental factors as they may determine the health and development of their children. Where the size of such a family is already as great as can be properly provided for in accordance with the family income and the strength of the mother, there is need for instructing the parents as to the social misfortune of any further increase when it means certain neglect or lack of proper nutrition, supervision, or education of the children already born, and the disability from over-work of parents already exerting themselves to the limits of efficiency in meet-

ing the responsibilities imposed by the already existing family. I know of no more pathetic situation than that of a woman who, when asked about the size of her family, remarked, "I have had ten children, and buried five of them." Once we would have condoned with her in her losses, but today we are inclined to think to ourselves, "What a wicked waste—a waste of human strength and energy, to say nothing of the economic waste through illness and death!"

A lecturer recently stated in a discussion on the size of families that two children are as many as can properly be reared by the New England family of average income, and that any in excess of two is a luxury—a luxury to be indulged in only in cases where the family income warrants it. Such a dogmatic statement, of course, should not be accepted literally, but at the same time it is a good proposition to bring to the attention of the man of average income.

It is not easy to change the ideals of adults whose life-habits are already well established, but usually an appeal can be made when the welfare of their children is involved. It is in this way, chiefly, that we hope to establish a higher code of eugenic ideals. The boys and girls of today will soon take their places as the parents of the coming generation, and we should waste no time in making available to them the discoveries of scientists who have worked out for the human race the laws bearing upon its future welfare.

To this end, we must educate our young people, boys and girls, by precept and example, to look upon their bodies as a valuable possession, as a wonderfully intricate and sensitive mechanism, which requires the same care for its well-being as any other delicate machine. This education must include instruction in the general laws of personal hygiene, including the proper kinds of clothing, food, water, and air. They should be taught the need for exercise and recreation, and especially the difference between the use and the abuse of these interests. Especially should they be taught the poisonous results from fatigue, and the necessity for sufficient sleep. All these things are so trite that one hesitates to repeat them, but in how few homes are those simplest rules of health either taught or observed!

In order to prepare the young woman for motherhood, it is imperative that she should be taught very definitely and explicitly her function as a woman, a wife, and a mother. This necessitates a knowledge of menstruation, of the marital duties imposed by marriage, and the processes by which new life originates within her body. In all these subjects the young

woman today is woefully ignorant. After her wedding day her sources of instruction are these:

(1) Her husband, whose sexual knowledge is usually founded on the most unscientific traditions which have been handed down from a far-away past.

(2) Her married friends, as ignorant as herself, whose sex experiences have been so varied as to furnish no safe standards.

(3) Experience, as time passes, a sad and costly source of instruction, and often futile because of lack of intelligent interpretation.

When I realize the ignorance of the average woman in sexual matters (and in a woman who may otherwise be very intelligent), I do not wonder that so many women look upon maternity as a shame, or a misfortune, or a nuisance, to be avoided, if possible, by abortion or by some means of prevention. I do not wonder that the children of these ignorant and misguided mothers are puny and liable to early death. Some years ago a friend of mine, a young woman who had lost all her near relatives, was about to marry. She was a well educated woman according to present-day ideals, but was densely ignorant of the facts about married life. She was intelligent enough, be it said, to know that she was ignorant in these matters. Having no near friends to whom she could go for help, she sought information from a physician, thinking that this was her best source of accurate information. The physician refused to give her any information, and stated that "her husband would tell her all that she needed to know!" When she contemplated the fact that the man whom she was about to marry had never before had any married experience, supposedly, she was led to wonder where he had acquired the knowledge which was to be sufficient for them both.

It is the right of every normal girl that she should know something of the beauty and the glory of her potential motherhood, and the right kind of instruction should be given her so that she may go into married life with joyful expectancy instead of dread, and that she may have a life which is rich and happy in the fulfillment of this high destiny. Instruction in practical eugenics does this for her. It teaches her the necessity for choosing wisely in the matter of a father for her children. I predict that in the very near future society will grant to the woman the initiative in this matter much oftener than at present. The leaven of practical eugenics already indicates this, and many young women today, not waiting for tardy leg-

isolation to protect them, are requiring directly from the men who seek them in marriage the proofs of their physical fitness for this relationship.

The boy approaching manhood and the duties and the privilege of man, husband, and father, is no better prepared than the average girl. True, he is not so ignorant of sexual matters as she, but unfortunately his knowledge is of such a nature that it is of no benefit to him. On the day of his marriage, the young man's sex knowledge consists, usually, of a sorry hodge-podge of shameful sex experience with low women, on a background of the prevailing false traditions regarding the woman's inferiority to man, and with a conviction of his "right" to use the woman's body to any limit that his sexual passion may dictate. Sexual desire, to him, is an overwhelming bodily appetite which must be satisfied, if possible, and it is nothing else. This he has been taught from boyhood up by both example and precept. The fact that it is often an artificially stimulated and over-indulged habit is not realized even remotely by him. The idea of controlling it by the development of his will or the possibility of sublimating it, or of transmuting it into other channels of expression in his physical or intellectual life, is rarely taught him. In only a few instances has he learned to think of this appetite as a force given to all living organisms primarily for the purpose of procreation.

Education in practical eugenics for boys must furnish them with an entirely new sexual code. Boys need to be taught quite as explicitly as girls, the spiritual significance of marriage, and the sacredness of the institution of the family. Boys must be taught that the double standard of morality as now practiced by men makes the marriage vows of the man a hypocrisy that the twentieth century woman will no longer tolerate. Above all, boys must be taught to respect all women as potential mothers, so that it shall be an ethical impossibility for any man to offer any woman money in exchange for the physical symbol of love. This, far more than all legislation, will help rid society of the great curse, prostitution.

The results of such education should be development in the young man of a sense of his responsibility toward his offspring; it should protect him in a large measure from the venereal diseases; it should give him a control over his sexual appetite; and it should place the human sex relation upon a higher plane than has ever yet been realized.

In my experience as a practicing physician and a teacher of hygiene I find young people entering marriage poorly pre-

pared for the experience. They are all at sea with no chart to guide them but the blind, dead-reckonings of others who have groped through fogs of untruth and half-truth of which their sex knowledge consists. This ought not to be. The wonder is not that so many of their children die in infancy; the wonder is that so many of them "pull through."

DISCUSSION

Prof. Roswell H. Johnson, Pittsburgh: We, of this section, have quite generally agreed in our earlier sessions that the workers for prevention of infant mortality are justified in their indiscriminate efforts, provided *only* that efforts are also being made to prevent the production of inferior stocks.

The methods of segregation and sterilization are each important in dealing with certain classes of the markedly inferior. But these are not the only infants whose birth would better not be. There is one class most of which could be eliminated by a mere change of attitude and laws on one subject. I refer to the undesired infant.

Infants may be divided into two classes; (1) those whose conception was desired or at least received with indifference; (2) those whose conception was not welcomed, even though at birth the attitude was more receptive. This latter class is by no means all illegitimate, in fact only a small fraction of the total number of undesired children in this country are constituted by the illegitimate, as I am assured by many in a position to know.

Now we are concerned with a comparison of these desired infants and the undesired as to their viability and their eugenic equality.

The greater viability of the desired infants must follow for these reasons: (1) They have not been impaired by unsuccessful attempts at abortion during the intra-uterine life. (2) They are less likely to be born of parents who know themselves to be of defective or objectionably abnormal nature. (3) They are less likely to be conceived and born during a period of temporary inferior state of health. (4) They are less likely to be born following too closely the previous pregnancy or lactation. (5) They are less likely to be born while parents are infected with venereal disease, and (6) especially because they will receive more devoted care.

The eugenic quality of the desired infant is better because in many cases the desire is actuated by (1) the normal and socially useful instinct of parenthood (by which I mean some-

thing different from that of sex) and (2) by a sense of the need of contributing to the next generation or (3) by the longsightedness involved in foreseeing the advantages of children to the parents as the parents grow older.

There are two methods of decreasing the number of undesired children, (1) by urging more sexual abstinence in marriage; (2) by the relaxation of the present interdiction of the spread of knowledge or materials used in the limitation of the family and a corresponding change in attitude. An additional reason for greater publicity in this matter is to discriminate in this field and so prevent some of the methods employed in ignorance of the whole subject which are distinctly injurious.

The situation at present is that well-informed persons are limiting their families as demonstrated by Sydney Webb's illuminating investigation, while the unwelcome children are disproportionately contributed by the ignorant.

A fear that has been expressed is that such knowledge and practice might depress the birth rate so seriously as to be a menace to the population of the future. As to this it would not be easy to decide, where on one side there is better quality with a stationary or a possibly slightly declining population for a while or an increase of our numbers by inferior contributions. An ambitious generation will surely work on hopefully for a better man.

Mrs. William Lowell Putnam: It is a pleasure to say that I agree absolutely with all that Dr. Johnson has said. In Buffalo, at the Sex Federation Meeting held at the recent International Congress on School Hygiene, all of the men who spoke took the blame of the present unfortunate state of affairs upon themselves, and all of the women joined in and put it upon them. I am very weary of this sort of talk from women. I also take exception to Mrs. Hammond's statement that women have been the upholders of the purity of the race. My own belief is that each sex is what the other has demanded of it. If women are purer than men it is because men have demanded purity of their women. Women have not demanded purity of men. It is for them to do so, for if they demand it they will get it. Women have the future of the race in their keeping.

Dr. Hastings H. Hart, New York: We are recognizing the plight of the feeble-minded girl, the most urgent problem before us. Dr. H. H. Goddard says that a feeble-minded

girl is three times as dangerous to a community as a feeble-minded boy. A normal woman will not ordinarily consort with a feeble-minded man, but a normal man will consort with a feeble-minded girl. If any man in the community offers an indignity to a feeble-minded child, every right-minded man of the community arises to the defense of that child. The feeble-minded girl of sixteen is in stature and physical instincts a woman, but in mentality and will power she is a child of six or seven years, and entitled to the same chivalric protection as her little sister, and even more, because owing to her situation and stature and development she is in more danger than a little child. She is pursued and destroyed like a rabbit, and regarded as a common prey to the reckless and thoughtless men of the community. When she goes wrong we lock her up and send her to a reformatory. From 25 to 50 per cent of wayward girls are upon examination found to be feeble-minded. We proceed to teach and train and admonish her and after a little she is sent out on trial and she gets into trouble again. Institution people are absolutely forced to send these girls out because we have not provided care for them. We provide care for the insane women who are not half as dangerous to the community. When this feeble-minded girl falls into trouble again she is labeled as a vicious person, a repeater; she is an outcast, despised, and she goes to jail. She will corrupt fifteen or twenty boys in a community, and infect them with disease. She becomes a mother of defectives, and the result is we are reaping a harvest that is incalculable. Why does a community take care of the insane woman and not of the feeble-minded? It is because of the superstition that the insane are dangerous; but the feeble-minded woman is three times more dangerous than the insane woman. We should get every woman of this class in every almshouse or reform school and have this question adjudicated and these women taken care of, at least during the child-bearing age. I am not opposed to sterilization, but it is absolutely futile. It does not prevent the spread of disease. We must do with the feeble-minded girl what we have done with the insane woman, that is segregate her. We are doing it with seventy-five thousand insane, and yet we say the expense is so great we cannot afford to segregate the feeble-minded women. We must also segregate the high-grade imbeciles, because they populate our houses of prostitution on one hand and on the other hand they perpetuate their kind.

Dr. Helen C. Putnam: Will you go one step farther and tell us what we should do with the feeble-minded man who has political power and social power in the community?

Dr. Hart: He should also be segregated, but I should segregate the feeble-minded women first, because they are the most dangerous. We are building schools for feeble-minded children, and gathering up these little children five and six years old and instituting an expensive method of educating them. My plan would be to close the door of every institution for feeble-minded children under twelve, and disregard every feeble-minded boy or young man until we have taken care of the feeble-minded girls and young women, and in the meantime I would press as rapidly as possible toward the segregation of the male also. You have sterilization in fourteen states, but in how many is it practically operated? It will never prove as effective as segregation so far as making inroads on feeble-mindedness is concerned.

Dr. Cressy L. Wilbur, Washington: This association stands for vital statistics so that we may cast light on these disputed points. I am heartily in sympathy with these eugenic matters. The building up of a better race by the methods of selection, and prevention of generation by defectives or degenerates, is going to be very effective. It will begin with the higher class, the better educated, those who are conscious of their defects; and for a long time to come it will not permeate the lower levels of society. Hence it would seem that for a time it might tend to accentuate the proportion of defects in the community. Perhaps in the higher races it will bring us to the point where our increase as compared with the lower races will be jeopardized, and we will cease to hold controlling power with those where the natural increase proceeds unchecked. And although we may have a higher quality, if we have not sufficient numbers to perpetuate the race, we must go under in the struggle for existence.

Prof. Roswell Johnson, Pittsburgh: I move that a committee of three be appointed to confer with the Executive Committee of the Eugenic Section of the American Breeders' Association as to the advisability of forming a new National Eugenic Society as recommended by Mrs. John Hays Hammond; this

committee of three to prepare a resolution to be submitted to the general committee on resolutions, such resolution favoring a Federal Bureau of Public Health.

Seconded and carried.

The chairman appointed as such committee the following:

NATIONAL COMMITTEE ON EUGENICS

Dr. F. W. Pinneo

Dr. Evangeline W. Young

Dr. Roswell Johnson

NATIONAL PUERICULTURE

**ANTONIO VIDAL, M. D.,; Chief of the School, Industrial and Social Hygiene Service, National Department of Public Health;
President Argentine Public Hygiene Society;
Delegate from the Government; Buenos Aires, Argentine Republic**

Mr. President, Ladies and Gentlemen:

Permit me to express my most heartfelt thanks for the invitation to attend and take part in the sessions of this meeting. I particularly appreciate this attention, not merely because of the honor involved, but also because it gives me the opportunity of expressing to this distinguished gathering a few ideas on matters of pressing importance and positive social significance.

The cause of childhood suffers much from the effect of unfavorable influences which we know today are in a large degree preventable. It is not merely a noble cause; it is more useful than any other, since one cannot help observing that in the intelligent and far-seeing care of the child are based the most definite factors of social advancement.

The two great statistical-social phenomena are becoming each day more clearly elucidated; these are high infantile mortality and low birth rate. As regards the former, statistics keep showing us the heavy tribute of life which tender infancy is everywhere yielding. But if this is true it is likewise true that the proportion is being reduced, notably in those groups where unhealthy influences may be avoided and where a healthy physique can be built up. Indifference, ignorance and poverty or lack of resources—the three predominating causes are being obviated, thanks to well-inspired social work. As regards the diminution of births, we face a real social disease, which increases, as is known, inflicting populations of the greatest culture. Here we cannot in most cases fall back on ignorance or lack of skill; on the contrary, we often find knowledge poorly used.

Preventive medicine and social hygiene lend to eugenics its greatest resources. There is no doubt that the purposes of this latter and those of the hygienist are common in many respects. In other situations, the views of biological and sociological economics necessarily prevail—tendencies toward the slow

formation of character, toward the gradual accumulation of hereditary traits; and finally, in some situations—divergent and even contrary tendencies show themselves. The hygienist because of the finality and ethics of his profession, protects and prolongs in their functional integrity, existences which go more or less contrary to the views of the eugenicist. It is somewhat difficult to show how these divergencies can be reconciled, but for the present, I would merely suggest the following:

1st. That as regards today, infancy and its preservation constitute the newest and most varied field of application as well as the most promising of the two sciences of hygiene and eugenics;

2nd. That it seems as if a progressive puericulture, a eugenic and national puericulture were about to be founded. (The term puericulture, commonly used in the Latin countries, is suitable for many phases of the matter, when applied in a broad sense, such as it is beginning to enjoy, and which its etymological composition allows.) A national and eugenic puericulture is desirable I think for all countries, but especially for all those receiving large accessions by way of immigration, such as is the case with the United States and Argentina.

In almost all European countries activities in the interest of childhood are being carried on with an extraordinary ardor. It would almost seem as if they were trying to make up for lost time. A lively emulation, a splendid competition are noted between cities and nations as regards this kind of work. A conviction seems to have suddenly penetrated the minds of all, that these undertakings embrace the foresight and progress of a community, of whose public culture they are really an index.

A few months ago it gave me great pleasure to witness personally such activity. My country having charged me with the mission of studying in Europe, institutions dealing with childhood, I had the opportunity of making direct and comparative observations. I have recorded my observations and I am preparing to apply the material so obtained as a means of arousing similar activities in my own country.

In France, Germany, England, Belgium, Switzerland, Holland and Italy the movement is very active and productive. In almost all of these countries foundations have been laid which have certain traits in common. In France and Germany the movement is being carried out with the most ample and vigorous impulses. France, it is true, is crippled by that

enemy of her prosperity, an internal enemy, the most terrible of all: the low birth rate, the relative or absolute depopulation. It is not strange, therefore that the forces of society are united in the strongest measures of conservation. And there is no better than the establishment of a high standard of child hygiene.

I do not intend to present even an incomplete sketch of the work in France. In addition to the well-known "Gouttes de Lait" there are the "Pouponnières" and the "Crèches" making a system; the "Consultations de Nourissons" the asylums and hospitals of many kinds; the work of the "Enfants Assistés;" the beneficial societies, etc. The oldest and most noteworthy for many reasons of these institutions devoted to puericulture is that at Porchefontaine, near Versailles, which Madame Veil-Picard and Dr. Raimondi conduct. In this latter institution and in many others a varied system of maternity education is given, to which among others, Professor Pinard, Marfan, Hutinel, Variot and Mery have consecrated their efforts. At the head of the numerous and useful societies there is the vast "French Association for Fighting Infantile Mortality" and guiding all is the series of progressive laws which the late glorious spirit Théophile Roussel initiated.

The movement in Germany, none the less important, presents many similar traits. This is explained by their similarity of purpose. The hospitals and clinics for children at the breast are particularly noteworthy, as are also the latest equipments for the preparation and distribution of pure milk for children. The instruction given to mothers and nurses supplements these varied forms of activity, and on a higher plane entirely devoted to physiology, pathology and hygiene we find the "Säuglingsalters." The excellence of this higher medical instruction and its marked scientific methods is almost the dominant note in the German movement. Heubner, Epstein, Finkelmann, Dietrich, Schlossmann, Keller and many others have contributed to its success.

At the head of all institutions in its importance, its costly equipment and its character is the "Kaiserin Augusta Victoria Haus zur Bekämpfung der Säuglingssterblichkeit im Deutschen Reiche," named in honor of the Empress. It is situated in Charlottenburg and is directed by Professor Langstein. Laboratories, clinics, experiment and study have reached their highest perfection here. As regards the legislative aspect, we all know what stage legislation protecting childhood has reached in Germany. There are as many associations as their

aims are varied, and above all, likewise founded several years ago, is a vast national organization, with local committees in all cities of the first and second-class importance.

Coming from Europe to America we arrive at your great and beautiful country. When my investigations in Europe were over, I saw at once that my studies would have a serious defect, if I could not include in them first-hand knowledge of the activities in your own country. You can therefore understand the joy with which I addressed myself to the work of personally studying the great movement that is being carried on here. The inspirations I have received are powerful and most beneficial. The establishments which here, as in England, have the same aims as the "Drops of Milk" organizations in other countries, have an amazing diffusion and perfection. There is one activity, in particular, which has become widespread among you, and which is of the greatest importance. It is the "Visiting Nurse Movement." Better results can be obtained from teaching mothers directly in their own homes, than in any other way, and the immediate change in the health of the babies can also be noted. Through the development of this system, I think you will not merely be able to equal, but also to improve notably in several ways upon the "Consultations des Nourissons."

Concerning the institutions and work of Child Hygiene in the Argentine Republic, allow me to indicate the lines we have traced for our future growth. The first is the establishment of higher education which shall be at one and the same time, medical, biological and social. The other is the creation and organization of an advanced Institute of Puericulture, embodying the best now existing in other institutions and containing also the equipment and means for experimental studies. When my country shall have finished this plan of expansion in Puericulture, I am sure that it will borrow much from your institutions. As the work in Argentine is inspired by yours, both progress toward scientific truth. Both take as their watchword the good motto of the International Union for the Protection of Early Childhood: *Parvulis Scientia Praesidio*.

SESSION ON OBSTETRICS

Saturday, November 15, 2.30 P. M.

CHAIRMAN

DR. MARY SHERWOOD, Baltimore

SECRETARY

DR. JAMES LINCOLN HUNTINGTON, Boston

STATEMENT BY THE CHAIRMAN:

Since the intelligence as well as the physical condition of the mother is a factor of great importance in the production and rearing of vigorous offspring, that scheme of conservation of infant life will be most effective which includes not only provision for advice and instruction of the expectant mother during the whole period of gestation, but adequate care during confinement.

The program of the Session on Obstetrics will include:

1. A discussion of the scope of prenatal work, its medical and social aspects, its necessary place in a plan for the elevation of the standards of obstetrical work in America.
2. A consideration of the out-patient department of the obstetrical clinic, in which provision is made for attendance upon a large class of maternity cases whose circumstances or whose inclination exclude them from the maternity hospital.
3. A consideration of maternity hospital care for the woman of moderate means.
4. Reports.

PRENATAL CARE

HENRY SCHWARZ, M. D., St. Louis, Mo.

In its wider scope prenatal care should give to the unborn child a reasonable assurance that it will be well born and that it will get a fair start in life by preventing the marriage of men and women who are physically, morally or mentally unfit for becoming fathers or mothers, and by doing, besides, all that which constitutes "Prenatal Care" in the limited sense in which we are to consider it this afternoon.

In this limited sense the unborn child is cared for by watching over the health and the comfort of the expectant mother; by preparing her for her maternal duties, especially for the duty of nursing her child and by making adequate provision for the safety of mother and child during delivery and the lying-in period.

In this latter sense prenatal care is as old as the human race, but the terms prenatal care and especially the term prenatal nurse are quite modern.

The study of the causes of infant mortality, to which your society is devoted, has attracted public attention to the fact that the greatest number of infants, who die under one year of age, do not live to complete the first month of life, and that the causes, leading to this enormous death rate, are often in operation while the child is still within its mother's womb; more often such early death is due to injuries which the child has sustained at birth, or to lack of breast milk and proper care during earliest infancy.

Attention having been called to this important factor among the causes of infant mortality, it was natural that the proper care of expectant mothers, including adequate provision for confinement and the puerperal state, should have been suggested as a preventive even by those, who were primarily inter-

ested in the reduction of infant mortality alone. It was then that the new terms were coined and that the prenatal nurse made her appearance.

The experimental work, started by the Committee on Infant Social Service of the Women's Municipal League of Boston four years ago, has done more than any other undertaking in America to call attention to the great possibilities for good in such prenatal work, and to point out some of the obstacles which will have to be removed before the benefits of competent prenatal care can be shared by expectant mothers in every part of our country.

The work consists principally in placing pregnant women as early as circumstances permit under the care of competent visiting nurses, who devote their entire time to the work of instructing these women in the hygiene of pregnancy, and who see to it that these instructions are carried out.

The propaganda in favor of prenatal care, to which the results of this work have inspired the members of the Women's Municipal League of Boston, has been and continues to be a wonderful help to the various agencies which have been engaged for some time in efforts to raise the standards of obstetrical teaching and of obstetrical practice in America.

This is all the more gratifying when we consider that the League has selected for its experiment a locality and a group of expectant mothers, which are not at all suited to demonstrate the full possibilities for preventing invalidism and for reducing the death rate among mothers and babies contained in adequate prenatal care.

The mothers experimented on were all women who had already placed themselves under the care of competent obstetricians, which, after all, is or should be equivalent to securing all that most up-to-date prenatal care has to offer; these women were all registered for delivery at the Boston Lying-In Hospital or at the Massachusetts Homeopathic Hospital, and they belonged to the enlightened class, who had expressed the desire to be delivered in those institutions in preference to their own homes.

When those of us, who are reasonably familiar with the character of obstetrical work and of obstetrical teaching in America, lament the fact that, in spite of the safeguards which modern obstetrics provides for childbearing women, the great majority of expectant mothers in this country do not benefit by these provisions, we are not thinking of the poorer classes in cities such as Boston, but we are thinking of the entire population of every county in the United States.

In some of our cities, which are blessed by being the homes of great medical and obstetrical centers, the poorest part of the population and the wealthiest part of the population are able to secure pretty good obstetrical care in the fullest sense of the word; this portion of our population, therefore, furnishes only a very small percentage of the thousands of women and of the tens of thousands of infants, who die every year in the United States in connection with childbearing from causes, which in the majority of cases reasonable obstetrical care would have prevented; nor does this fortunate portion of the population of these fortunate cities furnish a considerable percentage of the incomparably larger number of mothers and infants, whose health becomes permanently impaired from these same preventable causes.

Let us state the case plainly: More than nine-tenths of all expectant mothers in the United States receive no adequate prenatal care; more than forty per cent of all confinements in the United States are attended by male or female obstetricians, who are not qualified to give to parturient women a full share of the safety and comfort which modern obstetrics makes possible, and which ought to be the birthright of every expectant mother and unborn child.

To be still plainer: Many thousand women die following confinement, because they have been septically infected by incompetent obstetrical attendants; other thousands die or suffer impairment in health, because incompetent obstetrical attendants have caused inexcusable injuries to the mother's body during delivery, or have brought her to the brink of the grave by improper management of the third stage of labor; thousands of children die during delivery, because obstetrical attendants are unable to make a correct obstetrical diagnosis, and in consequence thereof crush out the life of the child by brute force in ill-directed efforts at delivery, or, what is worse, improper application of the forceps causes injuries to the foetal skull, which result in mental deficiency or epilepsy, and make many of these infants a charge on the community and permanent inmates of public institutions.

Great numbers of infants are reported still-born, because the obstetrical attendants are not skilled in the most efficient methods for reviving infants born in asphyxiated condition; the institutions for the blind are filled with people, whose eyesight has been lost during earliest infancy because the obstetrical attendants were neither skilled and conscientious enough to prevent ophthalmia, nor were they skilled and conscientious enough to cure the disease before it caused irreparable damage.

This represents a fair estimate of obstetrical work in the United States; excellent in places; good in a considerable percentage, and absolutely bad in about forty per cent of the entire work.

Before examining into the causes of this deplorable state of affairs let us take comfort in the fact that these causes are not specifically American; that the same or worse conditions exist the world over, including such countries as Germany and England, and that in the United States conditions are improving more rapidly than in other countries.

There are three causes responsible for the poor care bestowed on expectant mothers. These three causes are: ignorance and indifference of the laity concerning this entire matter; indifference and carelessness on the part of the states in the supervision of medical schools and of schools of midwifery; and neglect on the part of communities in not providing systematic care for all the sick poor, including expectant mothers. This latter cause is specifically American.

Concerning the first cause, it may be said that it really constitutes the only obstacle to bringing about the desired reform; for just as soon as the women of America realize the enormity of the crime which is being committed against the expectant mother and her unborn child, they will force the speedy removal of all the other causes by united and persistent effort.

Tradition and ignorance are alike combined in spreading the fable that child-bearing is a physiological process; that since the existence of the world generations after generations have been born and the race has multiplied in spite of the total absence of modern obstetricians; that the Indians and other peoples living in a state of nature get along mighty well without special obstetrical care, and the story of the squaw, who loiters behind a band of Indians, who delivers herself by the roadside, mounts her pony and catches up with her friends, is told time and again as a convincing proof against the necessity of treating expectant mothers with particular care.

It is perfectly true that we can not improve on the workings of nature; if we were to dispense with prenatal care entirely and were to leave the women to deliver themselves as best they can, the race would not suffer; in fact, it would be greatly improved and it would go on multiplying; all those that are handicapped would be eliminated, and, if we were to hasten the process by treating all delicate or defective infants with Spartan kindness, we would have a splendid object lesson of the way in which nature works out problems in eugenics.

I have in my collection the uteri of two women of the Isle of Guam, sent to me by a medical friend in the United States Navy; both of these women died undelivered; they had been unattended except by their own people; the one died of placenta praevia, and the other on account of a face presentation.

Another tradition which ought to be stamped out is that women have to suffer untold agonies in bearing children. It is true that uterine contractions are necessary and wholesome, and a certain amount of discomfort or even pain is unavoidable. It is, likewise, true that the indiscriminate administration of anaesthetics during labor often causes relaxation and hemorrhage after the child is born. On the other hand, with a first child, no matter how easy may be the confinement, there is almost always considerable suffering; the pain becomes excruciating at the moment when the head is born, and there is almost always some injury to the maternal passages. To give primiparous women enough chloroform or ether to make them insensible to this severe final pain of the first confinement, and to enable the obstetrician to repair the injured parts before the woman recovers consciousness, is not only permissible, but should constitute part of obstetrical routine.

To spread information regarding prenatal care, and thereby to dispel the ignorance and indifference of the laity on this subject, and to enlist its cooperation in efforts to bring about State and Municipal legislation for the improvement of obstetrical conditions, must be the work of publicity campaigns and of object lessons, such as are carried on by the Women's Municipal League of Boston; the spread of such intelligence is rendered more effective and begins to reach a great number of women all over the country by the timely publications of the Children's Bureau of the United States Department of Labor.

Regarding the indifference and the neglect of the various States of the Union in failing to provide efficient control over medical schools and over schools of midwifery, and in failing to subject candidates for license to practice obstetrics to reasonable practical examinations, it may be said that, as far as medical schools are concerned, most States are now beginning to exercise such control, and that State Board Examiners are getting more and more rigid in the examination of candidates for license to practice medicine. The majority of these boards require that candidates for examination be graduates of medical schools in good standing; and very few boards consider a school in good standing, which does not give practical bedside instruction in obstetrics. It is different with the control of so-called schools of midwifery.

The fact that a few States arrange for the examination and registration of midwives, and that some States require that candidates shall be graduates of duly incorporated schools of midwifery, does not atone for the fact that some States especially exempt midwives from all provisions of medical practice acts, and insist that they can practice without license and control, nor does it atone for the fact that not one single State in the Union has control over schools of midwifery in regard to the character of instruction and the requirements for admission.

The cry is raised now and then to abolish the midwives entirely; those who raise this cry forget that the obstetrical service, rendered to a large portion of our population, will not be improved by supplanting ignorant midwives by equally ignorant doctors, especially when the ignorance of the doctor is so much deadlier than that of the midwife. The doctor comes in contact with a greater variety of infectious material, and, by being more active in the application of instruments, he can do much more harm than can an equally ignorant midwife. Nor will it help the poorer population if we supplant a five or ten dollar midwife with a fifteen or twenty-five dollar doctor; the former, at least, acts as a cheap visiting nurse and takes care of mother and baby for a few days, while the latter requires the services of some other person for the work usually done by the midwife.

A simple and efficient means to do away with midwives without making martyrs of them and without working a hardship on a certain part of the population, consists in getting the same kind of State control over schools of midwifery and the admission of midwives to practice as is exercised over medical schools and the admission to medical practice.

Demand that these schools do a reasonable amount of bedside teaching, and that they train their pupils sufficiently to enable them to give safe and intelligent obstetrical service. This can only be done if certain entrance requirements are insisted upon, and eventually nothing short of a four years' high school education ought to be accepted.

This would, most likely, close these schools for lack of applicants; young women, with such preliminary education, would much prefer to enter a training school for nurses and engage in one of the many special fields to which the course in a nurses' training school has become the stepping stone.

The present day midwife, of course, has no social standing, nor is her earning capacity very great if she limits herself to honest work. Therefore, getting control over schools of mid-

wifery and providing reasonable entrance requirements for them, will very likely drive these schools out of existence.

Those midwives, who are now practising, will soon be driven to less harmful employment. In the cities the development of well organized obstetrical dispensary services with a system of visiting nurses before and after delivery, is already driving the midwife out step by step, and in the country the same may be expected from the activities of rural nurses, who are getting to be great factors for good in every remote corner of our country.

It should be said right here, that the most effective agents for spreading needful information among the people regarding prenatal care and similar topics, are the graduates of our nurses' training schools. Even at present a well-trained nurse makes a much safer obstetrical attendant than the best midwife, and, by giving some members of this intelligent class of workers a little special instruction, they can be fitted to supplant midwives in rural districts.

The midwife question in America is not as difficult to handle as it is in some other parts of the world. In Germany, for instance, the midwives continue to be of such low general education that they can not be entrusted with the use of the most potent antiseptics nor with the use of the hypodermic syringe, nor with the administration of chloroform or ether, and, since they are the only obstetrical attendants for the largest portion of the population, the women entrusted to their care must go on with the traditional suffering, and in many instances they must go on without timely repair of perineal lacerations, and all this, because the Government can not impose reasonable entrance requirements without changing the entire system of rural midwives (*Gemeinde-Hebammen*). Each village is required to maintain a midwife, who takes care of the village poor. For this work she receives annually certain emoluments from the community; for services rendered to villagers not on the poor list the midwife receives a modest fee. Her training she has obtained in a government school for midwives at the expense of the village. When it becomes necessary to have a successor trained for such a village midwife, the mayor selects the most suitable one from the village-bred applicants for the position; intelligence and education are not always in evidence. At two German universities, where village midwives receive their training, I have for four years given the candidates a preliminary examination in reading and writing, and have several times sent a candidate back to her village, usually with the result that she

returned in a few days with a statement from the mayor that she was the smartest woman in the village, or, at any rate, among the applicants, and that we had better keep her; which, of course, we did.

It is for such reasons that in Germany the entrance requirements for these schools must remain low, unless the government changes the entire system and makes the village support a well-trained midwife, who is not village-bred, just like most villages are supplied with fairly efficient school teachers, who are not village-bred.

We surely may hope to enlighten the laity on the benefits of prenatal care, and we may, likewise, hope that in the course of time the entire country will be supplied with fairly well-trained obstetricians, but to make the blessings of adequate care during pregnancy, parturition and the lying-in-state accessible to all expectant mothers it will be necessary to rouse large and small communities to a realization of their solemn duty to provide such care for the poor at public expense, and to appreciate the immense benefit to the community if it makes these blessings also accessible to those in moderate means by contributing liberally from the public funds to the upkeep of institutions, which take care of this class of cases at a price which is proportionate to their means.

So far I have not entered into the nature of prenatal care itself; it is not necessary to do so before this audience; but I do wish to emphasize certain points regarding the care of expectant mothers prior to confinement, and to show how that work has been carried on for many years in the obstetrical clinics of Washington University. The care of dispensary patients should not differ from the care of private patients. There is, however, this difference: of the six or seven hundred obstetrical cases, who register annually at our dispensary very few make application before the middle of pregnancy, and therefore, do not receive the full benefit of prenatal care. On the other hand, my private cases, with few exceptions, apply just as soon as their condition is known to themselves, and I am, therefore, responsible for any accident that may happen to them, if such accident could have been avoided by reasonable prenatal care.

At the time of registering every pregnant woman should be examined as to the position and size of her uterus and the condition of surrounding structures, because now and then the ovum is implanted in the tubes and not in the womb, and timely detection of such ectopic gestation enables the obstetrician

to remove it before its rupture has brought the patient into imminent danger.

Such early examination, likewise, reveals existing malpositions of the uterus; such cases at times need especial care until the uterus has fairly risen into the abdomen.

Every pregnant woman is instructed in the hygiene of pregnancy as far as diet, exercise, work and dress are concerned. She is particularly told to keep all organs of elimination in perfect condition; that is to say, to keep the bowels open; to keep the kidneys flushed by drinking plenty of pure water, and to keep the pores of the skin open by frequent bathing or washing. She is told to submit a specimen of urine once a month up to the middle of pregnancy, and twice a month after that period.

Her attention is drawn to the significance of certain symptoms, such as persistent headaches, disturbed vision, oedematous swellings, or escape of blood, and she is requested to report at regular intervals at the dispensary. Towards the end of pregnancy special attention is paid to the care of the nipples, and the skin of the abdomen. The condition of the pelvis is ascertained in every case by careful and repeated pelvic measurements. The cases are assorted according to pelvic conditions, and all those in which trouble may be expected are requested to enter the hospital at such a time as may seem best for delivering these particular cases.

All cases, no matter how normal conditions may seem, are examined about a week before their expected time, and, if in first pregnant women it is found that the presenting part has not entered the pelvis, these cases are, likewise, requested to enter the hospital.

That toxemia and eclampsia are in large measure preventable conditions, is fully affirmed by the results obtained in our dispensary and in private practice; but even if pre-eclamptic symptoms have developed, timely recognition usually prevents the outbreak of convulsions, and, at any rate, it enables us to meet the condition promptly and effectively.

Any one of these many advantages of prenatal care should insure its general introduction; the neglect of a physician to exercise reasonable care over expectant mothers, after they have placed themselves in his hands, should before long constitute an act of criminal negligence.

DISCUSSION

Dr. Philip Van Ingen, New York: I was particularly interested in the statement that was made in regard to the women

in the poor quarters of our city being turned over to male and female obstetricians, putting midwives and a certain portion of the medical profession working in such districts, in the same class. That's what we must bear in mind when we consider the midwife problem; that they are not much more poorly qualified to take care of obstetrical cases than some of the doctors practicing in the poor parts of the city.

The statement that 90 per cent of our American women are absolutely without prenatal care is of great importance. That makes America almost the only country which does not provide care for the expectant mother. When I was in London at the recent Conference on Infant Mortality, it was the subject of much discussion that the one part of our problem which has received little or no attention is the expectant mother. In this country everywhere we are beginning to organize campaigns for the expectant mother. I don't know enough of what is going on in other cities, except in a general way, to talk about them. I can only tell you what we are doing in New York. The New York Milk Committee has carried on for two years an extensive campaign of prenatal instruction. We have had 2,003 mothers in our care. They are visited regularly every ten days to two weeks from the time they are enrolled until the baby is a month old. It makes no difference whether the mother will be confined in the hospital, or by a physician or midwife in her home. Our idea is to see what can be done under existing conditions to improve the chance of that mother and her baby. We have had 2,070 babies. Our stillbirth rate during that time has amounted to 24 per thousand. That takes in only babies born after the sixth month of gestation. Counting all together it is 36 per thousand. Nearly 20 per cent of our stillbirths have been during the third month of pregnancy. Our rate of stillbirths among our supervised mothers has been 25 per cent lower than for the Borough of Manhattan during the same period. Of babies who were born alive, there have been 25 per cent less deaths during the first month than for the same period in the Borough as a whole. Of our mothers, 93 per cent of all those whose babies were living at the end of the first month were nursing them entirely. Only three and a fraction per cent were being fed artificially. The American-born mother stands next to the Italian in her ability to nurse her baby, as judged by the figures at the end of the first month. The Italian mother is 93.40 per cent, and the American mother is 93.07 per cent.

We realize that what we are doing is open to criticism. We do the best we can to secure our mothers the best care they

can get. If it is best we urge them to go to the hospital. In the districts where we are working we don't feel, from what we have seen—and really we have approached the matter with open minds—we don't feel that we are urging the mother to do anything very much better when we suggest that she substitute local medical attention for the midwife's attention. The Bellevue School of Midwives does a great deal for these mothers. The care that they get and the supervision that is exercised over the midwives is good. I am not one of those who believe that the midwife is a desirable institution. But I do believe that for many years to come the midwife is a necessity. I believe that the trained midwife, the one who is taught how to take care of her women, the midwife who is regulated by the authorities and not allowed to interfere, I might say, the female obstetrician, is less dangerous than the male obstetrician in our poor quarters.

The Chairman: We are fortunate is now having a Children's Bureau in the Federal Government. The fact that one of the first publications issued by the Bureau is on Prenatal Care, is significant of the importance attached to the subject, and is a matter of gratification to this Committee. We are fortunate in having Mrs. Max West, of the Children's Bureau, with us.

Mrs. Max West, Washington, D. C.: Dr. Schwarz, in his extremely suggestive and comprehensive statement of the subject under discussion, has mentioned certain factors which are working to bring about a betterment of the conditions which he has so graphically described. I have the honor to represent here today the youngest and the least tried of these factors, the Children's Bureau, which is endeavoring to carry forward its work in behalf of the health and welfare of the children of this country by striving to show mothers how to take care of themselves before the babies are born.

The reasons for undertaking this work were not far to seek. The latest report on Mortality Statistics by the Bureau of the Census shows that about 63,000 babies, or enough to make up the entire population of Fort Wayne, for example, died in the Registration Area of the United States in 1911, before they had lived to be one month of age, and that of this number more than 69 per cent or enough babies to provide the total population of a city as large as Topeka or Lincoln, died of specifically prenatal causes or injuries or accidents at birth (43,546). These figures, shocking as they are to all thoughtful persons, do not, unhappily, tell the whole story, since only 63 per cent of the population of the United States is included in the Regis-

tration Area at present, and it is a perfectly safe assumption that the proportion of infant deaths is not less in the non-registration area. The causes of death, covered by the figures you have heard are congenital debility, malformations, premature births, and accidents or injuries at birth. If to these are added the numbers of those who died from certain other assigned causes, which manifestly must have been to some extent operative before birth, such as the various forms of tuberculosis, syphilis and organic diseases of the heart, for example, and if, finally, is added the number of stillbirths, which unfortunately rests on nothing better than estimates in the present state of statistical development in this country, but which is believed by experts to be not less than 100,000 for the whole United States, we should have approximately 150,000 deaths of infants under one month traceable to conditions existing before birth took place, and this does not take account of the enormous but unknown number of induced and other miscarriages. What number or proportion of such deaths can be prevented by adequate prenatal care is, of course, impossible to determine, but the experiences of those who are engaged in this work go to show that a very large proportion of these deaths were wholly needless, and could have been prevented by the application of known rules of healthful living. In this conviction the Children's Bureau entered upon the preparation of a set of instructions for the use of women awaiting motherhood, and on the 16th of last August the pamphlet entitled *Prenatal Care* appeared. The method followed in its preparation was, first, to read and study the literature of the subject, or such part of it as was available; second, to observe and learn from the practical experience of those who were carrying on such work, as for example, the New York Association for Improving the Condition of the Poor, the New York Milk Committee, and the Women's Municipal League in Boston, through its Committee on Infant Social Service, all of whom put every facility for seeing their work at the disposal of the Bureau; and third, by seeking the counsel and advice of specialists in obstetrics. This help was always most cordially given. The members of the medical profession have been generous and unflinching in their cordial assistance, and, without exception, they have accepted our pamphlet as evidence of the earnest desire of the Bureau to cooperate with them at all times, by making the results of their study and experience available to women everywhere.

The pamphlet has been available for free distribution upon request for 12 weeks. The first edition of 7,500 was taken up

within three weeks, and up to the present time we have distributed 20,000 copies, with requests coming in steadily at the rate of approximately 100 per day. The distribution has been guarded with rather unusual care to insure that the pamphlet should reach only those who would make use of it. By far the greater part of the requests have come directly from interested women, from physicians, from nurses and from heads of various organizations and institutions, municipal, social, philanthropic and educational, all of whom are in a position to make a very direct application of the document. The eugenists present will perhaps be interested to hear that a few ministers have asked to have copies of the pamphlet to include one with each certificate of marriage, and that not a few similar requests have come from secretaries of Young Men's Christian Associations in all parts of the country, and Campfire Girls. One of the most encouraging features of the work we are here interested in, it seems to me, is the avidity with which the women are seizing upon this means of education and instruction. The correspondence of the Bureau affords abundant, often pathetic, evidence of the eagerness of all women to inform themselves upon these vital matters, coming, as the letters do, not only from every part of the United States, but from Cuba, Porto Rico, the Philippines, Canada and many foreign countries, but also, and much more significantly, from women of every class of wealth, social standing and education, all alike, eager for the help they hope thus to get.

The pamphlet on Prenatal Care, which is the first in our Care of Children Series, attempts to set forth as simply as possible the hygienic rules of pregnancy, and includes a brief chapter on the Nursing Mother. It endeavors, first of all, to be reassuring, showing that motherhood is a perfectly normal experience, and that suitable and sufficient prenatal care involves no mysterious knowledge hitherto hidden from the eyes of women, but consists chiefly in the resolute application of the plain rules of health. It urges that symptoms of illness should be brought at once to the attention of a physician, pointing out that such attention is of much greater service in preventing serious trouble later than it could be after the fact. In general, it strives to avoid controversial points and to convey well-authenticated information in the most direct way.

They tell a story over at the Department of Agriculture of the Horse Book, as the publication is familiarly known. This book has been printed and reprinted in enormous editions until somewhere in the neighborhood, it is said, of a million copies of the book have been distributed free of charge to interested

horse-owners throughout the country, probably the largest distribution ever given to any one government publication. The bulletin deals with the subject of the diseases of the horse. Let us not presume to belittle the importance of this subject! Since the automobile has shorn him of so much of his popularity let us give every attention to his diseases, but in passing I merely beg to call attention to the fact that there is another Government publication which deals with the subject of the health of human mothers and babies, to be had with the same ease, and equally free of charge!

Mrs. Wm. Lowell Putnam, Boston: The Committee on Infant Social Service of The Women's Municipal League of Boston has been devoting the greater part of its time during the past year to giving prenatal care, although it has also been trying for the past eighteen months to introduce teaching in the care of babies into the regular curriculum of the grammar school, for girls of the seventh and eighth grades. Some progress has been made in this matter.

In prenatal work the Committee continues to employ but one nurse, as its object is not personally to carry on prenatal care on a large scale, but simply to try experiments with a view to helping other agencies to put its results into larger practice. The number of patients cared for is thus smaller than in previous years, because, for the first time, throughout the full year, half of the nurse's time has been given to building up and supervising the prenatal work of the Instructive District Nursing Association of Boston. This has been made possible because the Boston Lying-In Hospital, whose house patients were taken care of by this Committee, having become convinced of the importance of prenatal care, has now for nearly two years employed a nurse for this purpose.

The result of the year's work has been very satisfactory and shows on the whole a steady decrease in threatened eclampsia, in premature births and in stillbirths, although the exact figures are liable to slight fluctuations.

In the last annual report of this Committee to the Women's Municipal League of Boston (which report is made up on April 15) the following comparative statistics are given:

COMPARATIVE STATISTICS.

April 15, 1909—April 15, 1913

Percentage of cases of threatened eclampsia to total number of patients:

1st year.....	10.2%
2nd year.....	4.8%
3rd year.....	1.7%
4th year.....	.0

Percentage of stillbirths to total number of babies:

Average for three years.....	2.6%
26 per thousand births	
Average for fourth year.....	1.7%
17 per thousand births	

Percentage of premature births to total number of babies:

Average for three years.....	1.7%
Average for fourth year.....	.7%

Average birth weight for whole period....7 lbs. 9½ oz.

Average birth weight for fourth year alone.7 lbs. 12 oz.

Miscarriages:

1st year.....	2
2nd year.....	1
3rd year.....	0
4th year.....	0

In the statistics for the present annual report ending October 15th, there appears a slight variation from those given above. The percentage of threatened eclampsia this year has been .9 per cent, a slight increase over the previous report. The stillbirths also have been slightly higher, 18 per thousand births, as against 17 per thousand last year. It is of interest to compare this rate with that of the city at large, as shown in the statistics given by Dr. William H. Davis at the meeting of this Association in 1912. He gives the stillbirths in Boston for the last twenty years as varying between 33.1 and 44.7 per thousand living births whereas as just stated, the rate of this Committee for the past two years has not exceeded 18.6 per thousand. This rate, including as it does, accidents during labor, is a striking illustration of the value of prenatal care. According to the statistics of the City of Boston, the number of births in the city in 1912 was approximately 19,000, and the percentage of stillbirths in that year was 39.3 per thousand living births. Had our percentage of stillbirths pertained throughout the whole city 393 babies would have been born alive whose lives, as it was, were extinguished before they saw the light of day.

The premature births have been reduced so that they stand this year at .4 per cent. The prevention of the birth of children before their time must result in better health and greater vigor and in saving of much needless suffering and expense.

One case of eclampsia has developed this year in spite of the care; a post-partum case in which no premonitory symptoms whatever could be detected.

The Committee has now carried to confinement 1,492 cases, besides caring for many others through varying periods, and it still believes that the limit of time allowed between visits should never exceed ten days, and that weekly visits are to be preferred, with a test of the blood pressure and the urine made at every visit.

For the first time the Committee has throughout the whole year made a special investigation of the method of feeding and condition of the child at the end of the first month, as this seems one of the best indications of the value of prenatal care. The statistics are as follows:

METHOD OF FEEDING DETERMINED AT END OF FIRST MONTH.

Breast fed.....	86.3%
Bottle fed.....	10.7%
Mixed feeding.....	2.8%

CONDITION OF BABIES AT END OF FIRST MONTH.

Method of Feeding

Known

Breast fed	Bottle fed	Mixed feeding	Unknown
Well.....97.85%	Well..... 71.5%	Well..... 100%	Well..... 0
Ill..... 2.15%	Ill..... 28.5%	Ill..... 0	Ill..... 0
Dead..... 0	Dead..... 0	Dead..... 0	Dead..... 3.6%

These statistics are of peculiar value in showing unqualifiedly the benefit of prenatal care, as the Committee gives up all care of mother or child at the onset of labor.

The exhibit of the Committee was shown in Washington at the XV International Congress on Hygiene and Demography and has since been traveling throughout the State of Massachusetts, together with that of the State Board of Health and other Massachusetts organizations.

The spread of this work through other agencies in this city—to other cities of the United States—and even to foreign countries, has been most encouraging.

The Boston Lying-In Hospital, as already stated, began this work about two years ago, as did also the Boston Board of Health.

In 1911 and 1912 New York, Milwaukee, St. Louis, Baltimore, Chicago, Buffalo, Fall River and other cities instituted care along the lines of the work of this Committee. The statistics compiled a short time ago by the Federal Children's Bureau emphasize the value of the work, and they show that 42 per cent of the mortality of the first year of life occurs during the first month. Within the past week a request has come to the Committee from the University of California for schedule cards and general information to help in carrying on the work there. Dr. Slemmons writes that one of his first requests was for a prenatal nurse. In his letter he says: "The value of such work has been clearly demonstrated in the four weeks the nurse has been working. She has brought to our knowledge several cases of albuminuria that otherwise would have escaped detection until convulsions occurred."

From Edinburgh Dr. Ballantyne writes, speaking of an article in the British Medical Journal: "You will notice on page 825 of the number for September 27th, a reference to your prenatal nurse at Boston; you will also notice that I have adopted the idea in a form in our Maternity Hospital here. We have had the internal arrangements for pregnancy cases for twelve years, and the out-door development begins now."

The knowledge of the importance of prenatal care is rolling up like a snowball, thanks to the enthusiasm of the members of this Association; and the further it rolls the more it enlarges its borders.*

* Since writing this report, a letter has been received from the Health Officer of Melbourne, Australia, asking for detailed information about the work, and saying "one cannot but be seized by its great importance."

THE IDEAL OBSTETRIC OUT-PATIENT CLINIC

F. S. NEWELL, M. D., Boston

In considering the subject which has been assigned to me for discussion, "The Ideal Obstetric Out-Patient Clinic," I have tried to formulate a general scheme which, with modifications to suit local conditions, can be fitted to the needs of any community. It is impossible, in my opinion, to elaborate a plan which is suited to all communities in minor details, owing to the varying conditions existent in the different communities, and, therefore, all that I have tried to do is to formulate a general outline which is susceptible of modification according to the needs of the community in which the out-patient clinic is to be established.

For an out-patient obstetric clinic to be of value to and therefore successful in any community it is necessary that there be a recognized need in the community for such a clinic. In other words, there must be a considerable population in that community whose circumstances are such that they require free or practically free medical attendance, and who receive inadequate care from the physicians who practise among them, a condition that exists in practically all of our large centers of population where the immigrant population tends to congregate. The number of these patients must be so considerable that the experience gained from their care will compensate for the time and money spent on them, as otherwise the care that they will receive will be perfunctory and they will be little, if any, better off than if no opportunity for dispensary care were afforded them, and one of the principal objects of such a clinic is to provide as good care for the poor as the well-to-do can command.

The second element necessary to the foundation of such a clinic is a constant supply of medical students or young physicians to whom the valuable experience gained from the care of these patients is sufficient compensation and who are able to devote themselves entirely to the work of the clinic when they are assigned to duty.

These two factors render it necessary that the ideal out-patient clinic should be founded in a city of at least moderate size in which there exists a considerable laboring class, and

preferably a city in which a medical school exists from which students can be drawn to care for the patients under the auspices of the clinic, or failing a medical school, a considerable number of young physicians who are both willing and able to undertake the care of the unpaid obstetric cases on the same basis that they would accept a well-to-do patient in order to gain the experience which can only be obtained from the care of a large number of patients. In charge of the clinic must be one or more well-trained obstetricians, who shall oversee the work and who are qualified to assume the care of the major abnormalities, which are sure to arise among any considerable number of patients; and who have access to a surgically equipped hospital in which the more serious obstetrical complications can be adequately treated.

These then are the essentials for the ideal clinic, a large number of patients, a sufficient number of medical students or young physicians to carry on the routine work under the oversight of one or more well-trained obstetricians, and a well-equipped hospital in which the more serious cases can receive adequate care.

Abnormal obstetric cases are apt to receive relatively poor care at home, even among the well-to-do, and for the poor patient the hospital is an economic necessity if good results are to be obtained. In addition a corps of trained nurses to visit the patients in their homes, both during the pregnancy and after delivery, while not absolutely essential for the well-being of the patient, will markedly increase the efficiency of the clinic and raise the standard of the work done, since they will perform many duties which would otherwise divert the medical attendant from the medical care of the case, and further act as a strong educational factor in teaching the patients first the importance of proper hygiene both during pregnancy and after delivery, and second how to approximate this ideal to the means which are at their command. In order to obtain the best results and to be of the greatest benefit to the community the obstetric clinic must aim first at giving its patients such care as will lead that portion of the population which has been in the habit of depending on midwives or on poorly equipped physicians to place themselves in the care of the clinic, and in the second place to educate the community by showing results as to the importance of the proper care of pregnancy and labor, and thus raise the standard of obstetric practice in the whole community.

One of the difficulties in out-patient work arises from the fact that the patients who belong to the class in the com

munity for whom the out-patient clinic is established have never been educated to the importance of a proper supervision of pregnancy, and every lying-in hospital is handicapped in its work by the fact that most of the serious cases which it is called on to treat have had no care during pregnancy and the complications which have arisen are seen late, often at a time when a bad result is inevitable, whereas if the patient had been under supervision early in pregnancy the complication would have been recognized early and the patient given such attention and advice as to at least favor, if not insure, a good result. It is perfectly natural that the lowest class in the community from whom most of the patients must be drawn should not recognize the importance of care during pregnancy when we see how few patients of the well-educated class really understand the importance of proper care during pregnancy and how comparatively few physicians have had sufficient obstetric training to appreciate the needs of their patients for unusual care before complications become serious. The trained obstetrician recognizes that the majority of the bad results could be avoided, if the patients were under intelligent supervision throughout pregnancy, and for an out-patient clinic to be properly conducted such a provision must be made.

The work of the out-patient clinic can best be considered under three headings: first, the care of pregnancy; second, the care of labor, and, third, after-care.

THE CARE OF PREGNANCY

In order to give the patients proper care during pregnancy a clinic for the care and study of pregnancy must be established under the charge, preferably of a lying-in hospital, in which all patients who apply to the clinic for treatment shall be studied, and one of the requirements which should be insisted on if a patient is to be cared for by the clinic is that every patient should report at the clinic at regular intervals, even though she may be perfectly well. In charge of this pre-natal clinic should be one or more physicians who have had a good obstetric training and who are, therefore, in a position to recognize any obstetric abnormalities which may be present in a given case, and to make provision for whatever special care the patient requires either at her home or in the hospital according to the nature of the case.

At her first visit to the pre-natal clinic each patient should be thoroughly examined and any abnormality noted, and her previous obstetric history, if any, should be taken. She

should then be given such simple instructions in regard to the hygiene of pregnancy as her intelligence and conditions of life will allow her to carry out. We cannot expect the woman of the laboring class to be able to regulate her life as accurately as her more fortunate sister, but the essentials of the hygiene of pregnancy can be followed by any patient, and will be followed by the great majority if the instructions that she receives are clear and simple, and the reason for the care made clear to her. At the first visit the patient should be instructed to report at the clinic at certain stated intervals and to bring a specimen of urine with her for examination at each visit, and a careful record should be kept of the time when each patient is to report.

During the intervals between these visits the patient should be visited at her home by a trained nurse who can modify the directions for hygiene given at the clinic to suit the conditions of the home, in regard to which the doctor is often ignorant, impress on the patient still further the importance of carrying out these directions, take the blood pressure, etc., and remind her that she is expected at the clinic at a certain date. If the patient does not report at the clinic as directed she should then be visited again by the nurse, or better, by one of the physicians on duty in the clinic to ascertain whether she has any good and sufficient reason for not reporting at the clinic, and she should then be informed that unless she reports to the clinic as directed she must look elsewhere for care and that the clinic will only assume responsibility for her if she obeys directions and under no other conditions. If possible it might be well, although it is not essential, for each patient to be visited at home in the intervals between her visits at the clinic by one of the physicians attached to the clinic to supplement the observations of the trained nurse and to make sure that everything is as it should be. The results of the nurse's visit should be reported to the clinic and filed with the patient's record for future use.

A month or six weeks before delivery the patient should be thoroughly examined. The pelvis should be again measured and the relation between the size of the child and the pelvis accurately determined, and from this time on the patient should be seen either at the clinic or at her home by the nurse at least every ten days. Such a supervision of pregnancy must result in the discovery of many abnormalities early in their course and insure to the patient proper care at the time of delivery, and each patient should in addition be instructed to report promptly any abnormal symptoms

which may arise between the visits of the nurse. The patient should be tabulated in the records of the clinic as being normal, doubtful, or abnormal, and such provision made as seems best to transmit such information to the department of the out-patient clinic in charge of the labor, in such form, that, when the patient sends to the clinic for a doctor to care for the labor, a glance at her record will show whether she needs any special attention at the time of labor.

No definitely abnormal patient should be cared for in her home, and all patients who are found to present a definite abnormality, whether it consist of pelvic disproportion, toxemia of pregnancy, or merely a history of obstetric disasters in the past, should be cared for in the hospital, for the tenement house furnishes no adequate means for caring for obstetric abnormalities, whether operative or due to disease.

Only such patients should be placed in the doubtful class as those in whom no definite abnormality can be discovered, even after examination under anesthesia. Such cases, for example, are primiparae, in whom at the end of pregnancy the fetal head remains high, but in whom a careful examination has failed to show any disproportion between the child and the pelvic canal or other recognizable abnormality, and in whom it is felt that the onset of labor will be attended by a prompt descent of the head into the pelvis.

In my opinion, the ideal obstetric out-patient clinic should deal entirely with normal cases or those requiring simple operative procedures, and never attempt to care for serious cases except in emergencies, such as prolapse of the cord, in which immediate operation is necessary for the sake of the child and the time lost in moving the patient to the hospital might be a serious factor in the result.

If students are employed to perform the routine work they should be assigned to duty in the pre-natal clinic where they would gain a very valuable experience in the care of pregnancy, a subject which at the present time is seldom provided for in our medical schools, with the result that while the majority of men enter practice with a considerable knowledge of the methods of normal or operative labor, they have little or no experience in the care of pregnancy and the early recognition of possible abnormalities and do not realize its importance, a fact which accounts for the condition which we see in general practice that treatment of abnormalities and not prophylaxis is given the greatest attention, and that the care of pregnancy is largely neglected.

CARE OF LABOR

The care of labor should be assigned to another department of the out-patient clinic, but the relation between the two departments should be such that all the records of the pre-natal department should be immediately accessible, so that when a patient sends to the out-patient clinic for a doctor at the time of labor he shall go to the case with the full knowledge of the previous history of the patient just as does a physician in private practice, or at least he should know whether the patient is classed as normal or as a doubtful risk.

Under ideal conditions the actual care during labor and at the time of delivery should be under the charge of third or fourth year medical students, or failing these, of young graduates to whom the experience gained in the conduct of a large number of normal cases will prove of value. During their term of service at the clinic they should have no outside duties or calls and should remain ready to answer calls day and night. In a clinic of any size this work is very exacting and the term of service should be comparatively short, not over two weeks, in my opinion, at any time, owing to the physical exhaustion which the work entails. The number of men assigned to the clinic at a given time must be regulated by two factors, first the number of patients under the charge of the clinic, and second the number of students who are obtainable to do the work.

In our own clinic where we care for some two thousand patients a year, with a fairly wide geographical distribution, we maintain two stations in different portions of the city and try to have four students on duty at each station under direct charge of an out-patient house officer who is a graduate of a general hospital before he comes to the lying-in hospital. One student goes off duty each Wednesday and Saturday, and his place is filled by a fresh man, so that in times of stress there are always one or two men who are physically able to bear the burden and allow the men who have been on duty longer a chance for sleep, which is often needed.

When the patient applies to the hospital for care, her record should be inspected and a student assigned to the case. He should preferably make his first visit alone, since, in my opinion, if the student is accompanied by a house officer or by a member of the out-patient staff the patient is apt to lose confidence in him, and even the presence of a trained nurse will tend to lessen the student's reliance on himself, and, there-

fore, tend to make him less efficient. Each student on leaving the station should register the time and place of his call, and if after a reasonable interval, say three or four hours, he has not reported the conditions present, the house officer should then make a personal call and check up the findings of the student, give him such instructions as are necessary and direct him to report the progress of the case at a given time or the appearance of any abnormal symptoms as soon as discovered. Each student should be required to watch several deliveries in the hospital, if possible, before being assigned to duty, in order that he may have a standard set which he will try to attain in regard to the proper conduct of delivery. If no opportunity can be afforded in the hospital for such instruction it should be obligatory for each student to attend several cases, the more the better, as assistant to the student already on duty.

We also find it a great advantage to maintain an instructor attached to our clinic who endeavors to see each student with one or more of his early cases and instruct him in the proper methods to follow in attending a case, but our endeavor is to give every student as much responsibility as is possible without detriment to the patient, in order to make him self-reliant and increase his efficiency, feeling that by the proper oversight before mentioned, we can safeguard the interests of the patient fully and yet give the student a chance to gain valuable experience on his own responsibility.

If every patient has been conscientiously supervised during her pregnancy and if adequate provision is made so that no case of prolonged labor can exist without being seen by a competent obstetrician the actual work of delivery can be left safely to the student under supervision without fear that the patient's interest will be jeopardized and the work of the out-patient clinic will be reduced, as it properly should be, to the care of normal labor or low forceps operations and the study of the convalescence of the patient. Of course, an occasional emergency may arise, such as prolapse of the cord or premature separation of the placenta, which will call for an operation of greater magnitude than is ordinarily contemplated in the patient's home, but these emergencies will be few, and the objects of the clinic, to afford adequate care for the parturient woman, and valuable experience for the student in charge of the case, will be gained at a minimum of risk, since, as far as possible, all abnormal cases will be removed from the clinic and cared for in the hospital. Even though carefully supervised the students should be required

to report progress on all patients who have been in labor more than four hours; all patients who have been in the second stage for two hours or over, whether making progress or not; all cases of ante-partum or post-partum bleeding and all perineal lacerations, and provision should be made at the out-patient station so that any call which the students may send in can be answered promptly by the physician or house officer in charge of the work. Care should be taken to see that too great responsibility is not placed on the house officer, and a competent obstetrician should always be in charge of the clinic who shall act as a consultant and assume charge of any serious cases which may arise at any time.

AFTER-CARE

The delivery having taken place and the patient being in good condition at the end of delivery, the care of the convalescence becomes the next object to be considered. Each student should be required to visit each patient whom he has delivered at least twice a day for the first three days, taking the patient's pulse and temperature, noting the character and amount of the lochial discharge, examining the baby's eyes and noting the establishment of lactation, etc. He should be required to register the results of each visit at the out-patient station so that his records may be examined at any time by the house officer or physician in charge. The patient should also receive daily visits from the trained nurse attached to the clinic, at least for the first five days, unless the patient's circumstances are such that she can provide a competent nurse for herself, and the nurse should report immediately any abnormality which may have escaped the student's attention, and instruct the patient as far as possible in the care of herself and baby.

After the third day the student should visit the patient at least once a day for the next four days and at such intervals as may be necessary following that till the patient is discharged from the care of the clinic.

The house officer or physician in charge of the clinic should visit each patient on the third or fourth day after delivery for the purpose of checking up the student's work and seeing that his reports of the case are accurate, and no patient should be discharged from the clinic till a complete examination has been made by the house officer, which should include a vaginal examination to ascertain the position of the uterus and the progress of involution, the condition of the cervix and healing

of any perineal tears which may have occurred. The condition of the patient's breasts and the eyes and umbilicus of the infant should be investigated, and no patient should be discharged from the clinic who cannot be certified as obstetrically well, unless she is transferred to the hospital for further care or is discharged against advice owing to unwillingness to follow out the directions which had been given her.

If any abnormality is found at the final examination necessitating a subsequent operation the patient should be referred to an appropriate hospital. In other words, for the work of an out-patient clinic to be properly done the pregnancy and labor and the convalescence of each individual patient should be followed as carefully as the most conscientious obstetrician would follow a patient in his private practice.

We all recognize that the care which the rank and file of patients get during pregnancy, labor and convalescence, even in fairly good practice is utterly inadequate to assure good results, and the aim of every out-patient clinic should be to give each patient as good care as she can receive from the most conscientious obstetrician and to impress on the minds of the students the importance of such care in the hope that the out-patient clinic will prove to be not only a blessing to the patient, but a means of raising obstetrical practice from the low plane on which it is conducted by the average practitioner.

In good practice it is surprising how ignorant the average mother is in regard to the care and feeding of her infant, and in hospital practice this ignorance is naturally more marked. Furthermore, the means of the working woman are often inadequate to provide proper food for her baby if she is unable to nurse it satisfactorily. A close association between the obstetric clinic and a pediatric clinic should therefore prove of great value, and the ideal out-patient obstetric clinic demands the establishment of an associated pediatric clinic to which every patient discharged can be referred, the mother being instructed in the proper care of her infant and proper food provided in case she is unable to nurse. Probably in no way can the mortality among infants be more reduced than by these two clinics working in harmony, the obstetric clinic providing for the care of the mother and child during pregnancy and labor, while the pediatric clinic provides for the care of the child at the time when such care is most valuable and teaches the mother how to carry on the work afterwards.

The objection may be raised that the expense entailed in the conduct of such an obstetric clinic is prohibitive, but our

experience has been that the voluntary contributions of the patients who are grateful for the care they have received more than pays the running expenses of the clinic, although in the early years a deficit must be expected. The success of such a clinic depends on being able to prove to the patients that they will receive better care in the clinic than at the hands of midwives or of poorly equipped practitioners. If this is once demonstrated to the patients the growth of the clinic is assured.

DISCUSSION

Dr. J. Whitridge Williams, Baltimore: I endorse almost everything that Dr. Newell has said concerning the organization of an ideal out-patient obstetrical clinic, but I shall not occupy your time by discussing the minor points of difference between us, as it would be neither profitable nor interesting to this audience to go into details concerning the organization and management of such a service.

Dr. Newell's description applies almost entirely to his own service in connection with the Boston Lying-In Hospital and the Harvard Medical School, and to the opportunities it offers to a certain proportion of the poor women of Boston. I am inclined to believe that the discussion should cover a broader field and should include the consideration of the following points:

- a. The best method of affording suitable obstetrical care to all poor women who need it.
- b. Its effect upon the community.
- c. Its bearing upon the education of medical students.
- d. Its influence in advancing knowledge.

Dr. Newell's service and my own at the Johns Hopkins Hospital in Baltimore, as well as others in various localities, are doing excellent work, but unfortunately, it is relatively limited; as must be the case when the charity is supported by a university or hospital and is conducted primarily for the instruction of students.

What we need is an extension of such services, so that they may be available for all poor women living in our large cities, and what we have to discuss is how it can be brought about. I am particularly interested in the subject, as I have been requested by the Board of Supervisors of City Charities of Baltimore to devise a plan by which such a result can be realized in that city.

Each of the three medical schools of Baltimore maintains a larger or smaller out-patient obstetrical service whose work is necessarily limited to the portion of the city in its immediate vicinity and is hampered by lack of funds. Even if the money necessary for their proper maintenance were available it would not be feasible for the three services to attempt to cover the entire city, as they are too remote from its outlying parts, and if sub-stations were established and properly manned, great difficulty would be encountered in giving them the necessary supervision.

I believe that city-wide out-patient obstetrical care can be secured only by co-operation with the State and Municipal authorities, when the entire system could be co-ordinated and conducted harmoniously and efficiently. Under such a plan suitable subventions should be given to the poorer medical schools in order to make possible the employment of a social service worker and a prenatal nurse. The necessary number of nurses to care for the patients at the time of labor and afterwards should be provided by the school, while the medical care would be given by trained assistants and students under the supervision of the professor of obstetrics. Each school should be expected to care for all women who might apply from a specified territory, and any overlapping should be carefully avoided. In the portions of the city far distant from the schools, substations should be established and maintained by the city. Each of these should be in charge of a competent resident physician, who should have under him the necessary numbers of nurses and workers, together with a number of students from the several schools. Furthermore, each station should have a connection with a specified hospital, to which all abnormal cases should be sent; while the entire organization, including the medical school services, should be supervised by a broad-minded medical director and a competent social service worker. The services of such a department should be available for all women whose husbands have a maximum income of \$600 or \$700, and should be free to the very poor, while a small fee should be charged those who are somewhat better off.

Of course, it might be objected that such a scheme would involve the city in too great expense, and that it would be impossible to induce the politicians to appropriate the necessary funds for its support. To my mind, neither of these objections would hold; as I believe if those who could afford to do so, paid the service the usual midwife fees, that it would not cost over \$12,000 to \$15,000 a year in a city of one-half

million inhabitants. Furthermore, I am confident that the politicians could be interested in the scheme; as I know from my own experience that even politicians of the type which brings despair to the reformers will lend a ready ear and a helping hand to any proposition which offers a reasonable prospect of materially improving the condition of the poor.

This brings us to our second point—the effect of such a plan upon the community. In the first place, it would save many women from invalidism and operation, as it is well known that more than one-half of all gynecological operations are rendered necessary by conditions resulting from infection or the faulty treatment of labor or abortion. Many of these complications would be prevented but when they occurred proper treatment would frequently bring about prompt recovery, so that the city would be spared at least part of the expense now incurred for the maintenance of gynecological beds in hospitals. Furthermore, intelligent prenatal care would prevent many of the deaths now occurring from eclampsia and other complications of pregnancy and labor.

Intelligent treatment would also materially diminish the number of dead-born babies, as it is well recognized that more than one-half of such deaths are readily preventable. Moreover, many deaths in the first year of life would be prevented, as the prenatal and obstetrical nurses would instruct the mothers as to the importance of suckling their children, and when that was impossible they would be put in the way of receiving a proper supply of artificial food.

Blindness from ophthalmia neonatorum would also entirely disappear, as every one connected with such a service would employ as a matter of routine the prophylactic precautions which practically absolutely prevent its occurrence. It is a well-known, but regrettable fact that notwithstanding the possession of such a prophylactic, the incidence of congenital blindness shows no diminuation. In this way the ideals of the Society for the Prevention of Blindness would be attained, and large numbers of innocent persons would escape the miseries of blindness, and the City and State would be spared the burden of their expensive education of their maintenance in blind asylums. Finally, the community would benefit by the gradual disappearance of the midwife and the even more dangerous ignorant physician.

All of these objects may be obtained by the annual expenditure of a sum of money sufficient to maintain 40 hospital beds at the rate of \$1.00 a day; while the community would benefit by having fewer invalid women, many more well babies and no blind ones.

The third point—namely, the bearing of such a scheme upon the proper education of medical students—can be disposed of more briefly. Generally speaking, obstetrics is the poorest taught major subject in our medical schools. This is in great part due to the fact that the lying-in hospitals connected with them are too small to afford each student the opportunity of delivering a sufficient number of patients under proper supervision to become a reasonably safe practitioner. I think that I am safe in stating that the average medical student rarely assists at more than five labors before graduation while at least 20 or 25 are essential to a reasonable training. Under such a plan as has been proposed each of the 300 students, who each year obtain their obstetrical training in Baltimore, could obtain the necessary experience and thus be put in the way of becoming a competent practitioner.

It should, however, constantly be borne in mind that the plan would fail to produce the best results unless it were controlled by a broad-minded medical man who is interested not only in caring for the women and their babies, but equally so in advancing our knowledge of the generative processes of women. One method would merely substitute male for female midwives while the other would train a certain number of persons to become scientific obstetricians and productive investigators. In other words, the scheme would fail to give the best results unless it were in charge of men with true university ideals, and would be foredoomed to failure if controlled by politicians whether medical or otherwise.

Dr. S. Josephine Baker, New York: My experience with out-patient clinics is limited. I want to endorse any movement which will make for better care of mothers and babies in our large cities. In New York City we have found that the so-called "reformers" are exceedingly liberal towards this question of baby-care. Whether or not the city would take up a question of the magnitude described by the speaker is debatable. There is a tendency in most of our city governments to assume more and more an attitude of so-called "paternalism" in regard to child welfare movements and it is possible that such a movement as this may come into being. When it does, it will do a great deal to solve our vexed midwife question and the problem of the poorly-trained doctor, which is a very serious one in our large cities, and it will help to solve the problem of the excessive death rate in infants from congenital debility. Unless we can reduce this latter death rate we cannot make very much more headway in the reduction of infant mortality,

particularly in those places where the decrease has been marked during the past few years.

The Chairman: Dr. Fulton, of Louisville, will tell us something about this movement in Louisville.

Dr. Gavin Fulton, Louisville, Ky.: My experience along these lines has not been very large, although I have been interested in the subject for a number of years, but owing to the lack of funds it is only in the last few months that we have been able to make any headway. We have the same difficulties in raising money in Louisville for charitable or welfare purposes that are experienced in other cities. For the last five years we have been anxious to establish an out-patient obstetrical clinic in Louisville in connection with our child welfare work. I think that it is the most important phase of any in reference to this work. For prenatal instruction and proper obstetrical care of mothers certainly lessens the difficulties of the problem of care and feeding during the first and second nutritive periods. Wherever we go we hear protests against the present inefficient obstetrical training of students and the consequent incompetence of the medical profession in general, particularly during the earlier years of practice in this branch of medicine. It is a familiar cry that the doctor is not trained but this cry is not followed by any proposition of practically improving conditions. I hardly think the remedy can lie along the line which I heard suggested at one of these meetings in another city, which was as follows:—To establish a six months' training school for midwives. The product of such a school would hardly be the superior in efficiency to a four-year graduate of a reputable medical college. I think this plan needs no comment. The ultimate hope in my opinion is for those interested to talk less and be more active in their demands and efforts to improve the clinical instruction of the student. Theory supplemented by a few cases seen from the benches cannot produce the foundation of a good obstetrician. It seems to me that if out-patient obstetrical clinics were established in connection with the infant welfare organizations in which the schools were allowed to take their part at least an attempt would be made in the remedy of these conditions.

As I have stated, about three months ago we made a modest beginning along these lines. We have established in connection with the Babies' Milk Fund Association, an out-patient obstetrical clinic which is held once a week in offices adjoining the Milk Fund. The University of Louisville pays the slight running expenses of this clinic and provides two students con-

stantly in residence who are present at the clinics and at each delivery under the instruction and supervision of a member of the medical staff who is a competent obstetrician. The Milk Fund Association furnishes a nurse who does the prenatal teaching in the homes under the instruction of the Medical Director of the Babies' Milk Fund Association. At the end of the tenth day after the birth of the baby it is enrolled by the Milk Fund Association and its care and feeding are supervised by this Association from the very beginning, thus giving us the opportunity of breast feeding in many instances where this food would have been denied the infant and of exercising the proper control of the artificial feeding where it is necessary.

In conclusion, the establishment of these clinics offers facilities for improving the teaching in the schools and the training of ignorant expectant mothers in preparation for their future off-spring. It further means more breast-fed babies and when we have appreciably increased the number of breast fed babies we have taken a large step in the lessening of infant mortality and have also simplified the argument of how to feed them.

Dr. H. W. Bennett, Manchester, N. H.: We have a scheme for eliminating the midwives in the smaller cities. Manchester's industries are largely textile and shoe manufactories. They employ between them about 23000 operatives. These operatives are largely of foreign extraction—French Canadians, Germans, Greeks, Poles and other nationalities. The wages paid are small, lower in the textile mills than in the shoe factories. There were last year 2,149 births in the city. Of these 94 were delivered by midwives, of which there are six in our city. Two of those delivered one case each, one delivered five, and the remaining three delivered 11, 28 and 48 respectively. The midwife who delivered the highest number of cases is the only one in whom we are very much interested. Next year she leaves us seeking more lucrative fields. She is going to New York City. The agency that has made her business unprofitable is the District Nursing Association. The percentage of mothers who are unable to afford either a family physician or hospital care is approximately 11 per cent. of these 6.6 per cent have been delivered by the Nursing Association and the remainder by midwives. The executive head of the obstetrical department of the District Nursing Association is a physician. Patients are required to pay what they are able. The Metropolitan Life Insurance Co. has cooperated with us paying for the mothers who are insured

in that company in its Industrial Department. In Boston the criticism was made by Mr. Green that in this way we were encouraging industrial insurance among the poor. We think that criticism is not justified. In the first place in an industrial center instalment insurance will prevail, whether there is savings-bank insurance or not. The little work we did will not increase in any way the amount of such industrial insurance. We are simply taking care of those mothers who would otherwise go to the midwives. Obstetrical service is given by the younger men as they come to town. They are looked up and their records gone over and if favorable, they are requested to donate to the association their services subject to call for two or three months a year as the case may be. The question was asked in Boston how we were able to secure their services. It is simply a matter of custom. The older men began donating their services at the organization of the association and as their practice increased they simply asked the younger men to do their share. Of course, there are many things that an older man can throw to the younger men in return. It also increases a new man's practice, and ultimately it brings him in good standing with the older men and gives him their stamp of approval in the community. The wage that is paid in cities of this class is low. In Manchester the operatives are employed a larger percentage of the year than in any other shoe or textile city in America; this steady employment to some extent removes the problems of poverty that some of the other cities have to deal with.

Dr. F. W. Pinneo, Newark: I have been greatly interested in Dr. Newell's admirable paper and excellent outline for an obstetrical out-patient clinic. Where a model school exists as at Boston, to afford resources in workers it is the best plan yet organized. I am from Newark, a city of about 400,000 population, which has a reputation to maintain for the extent and organization of its charities, and which knows the obstetrical problem and seeks its solution. Dr. Williams' broad-minded remarks have been very helpful. Dr. Bennett's report of the experience of Manchester is still more applicable to Newark with a similar population. We have no medical college nor medical students, being so near both New York and Philadelphia. But such a plan as Dr. Bennett commends shows how feasible is the handling of the charity obstetrical cases by medical practitioners when properly organized. Dr. Williams' recommendation that public funds are necessary suggests the possibility that our Board of Health might lend aid to a plan which proved wisely philanthropic and efficient. The speaker would be glad to

learn of the experiences of any other city which has a free obstetrical out-patient clinic.

Dr. Henry Schwarz, of St. Louis: In America we are better off in having started prenatal work sooner than other countries. We are much better off because of our excellent system of nursing and the other branches of social service health work that have developed within it and none is spreading much farther or quicker. So the public at large will be much sooner notified on that matter. But we are worse off on account of the lack of state control than the old country. Much as Dr. Williams admires the work he still insists that it is the work of the community and the state. As to the work they are doing in Manchester Dr. Bennett describes the Dispensary of the Washington University when he outlines the Manchester plan. We have in our Dispensary the work of the social service department and the work of the prenatal nurse. We have the women visited after delivery by the district nurses who are in part paid by the Metropolitan Insurance Company. The company pays fifty cents for each visit. We have many patients who are not insured and the district nurse charges the same price, fifty cents, for each visit. The Nurses' Association is closely allied with the St. Louis Children's Hospital and when the patients are discharged from our clinic, the children are referred to the St. Louis Children's Hospital Dispensary.

Dr. S. Josephine Baker, of New York: I would like to report the fact that by resolution of the Board of Health of New York City, after January 1st, 1914, no woman who does not already hold a license will be permitted to practice midwifery in the City of New York until she has completed a course in a school of midwifery registered as maintaining the necessary standard.

MATERNITY HOSPITAL CARE FOR THE WOMAN OF MODERATE MEANS

GEO. W. KOSMAK, M. D., Attending Surgeon, Lying-In Hospital,
New York City

There is a manifest and increasing tendency at the present day among the laity to resort to hospitals in cases of illness, especially if of a serious character, and the popular prejudice against such institutions, formerly so prevalent, can no longer be said to exist to the same extent as a few decades ago. The growth of hospital accommodations has steadily increased from year to year and whether poor or well-to-do, each patient can usually be provided for, according to his or her means. Strange as it may seem, this applies less to maternity hospital care than to any other, and although public and private charities have provided to a fairly liberal extent for the needs of the poor and the well-to-do, there are very scanty accommodations for women who are able and willing to pay a moderate fee for attention during their confinement in a maternity hospital. A moderate fee for board, etc., might arbitrarily be stated to range from \$10.00 to \$15.00 per week.

There are a large number of women who cannot be confined in their homes at all, or only with difficulty, for reasons about to be detailed. They may have to depend in pregnancy on very inadequate medical and nursing attention and its dire consequences. These patients are without the realms of the pauper class and as they cannot obtain hospital accommodations within their means, they are often compelled to enter the free wards of these institutions at a considerable disadvantage and detriment to themselves and their families. Among them are often included the most self-respecting element in the community; the wives of clerks, small store-keepers, artisans, bookkeepers, and similar employees whose weekly wages range from \$15.00 to \$30.00. Families of this kind may be able to pay a moderate fee to a physician who would confine them in their homes with the assistance perhaps of a "practical" nurse or another female member of the family. If all goes well and the delivery is an uncomplicated one, the situation may be satisfactory, but with the uncertainties attending a first labor, or in other cases where complicating conditions

are present, the patient would be very much better off in a hospital than to be confined in one of the small apartments of the present day in which, of necessity, such people are usually compelled to live. The modern apartment house which supplies the housing needs of people in moderate circumstances, does not afford proper facilities for confinement and neither does the furnished room or the boarding house which many of these young married couples are obliged to resort to in the first years of their wedded life. This condition undoubtedly is reflected in the birth-rate of this particular element of the population in various ways. In the first place, the lack of proper facilities and likewise the cost of proper attention, result in an attempt to avoid pregnancy or if conception does result, notwithstanding such care, attempts will be made to induce abortion. If young women could be afforded a refuge during their confinement at this period of their lives, it would undoubtedly greatly alleviate the terror with which many of them look forward to childbirth, and often with good reason. It may be truly said that the poor woman who applies for attention during her confinement to the Out-Door Service of any one of our maternity institutions, will in the case of trouble receive better care and attention than the prospective mother somewhat better situated financially, who engages a physician to attend her and who may in the course of the labor find it necessary to summon assistance. Unfortunately, obstetrical standards among many members of the profession are not high enough to compel them to have a proper equipment for the delivery of such cases and thus a great burden often falls on another physician who may be called in after a prolonged and tedious labor or other accidents which demand operative delivery. Skilled assistance is very essential under these circumstances if the life of the child and very often the mother is to be saved.

It would, therefore, be for the woman's individual good, for that of physicians as a class, and also that of the community, if people of moderate means could be provided when necessary with the proper hospital facilities at rates within their means. This also applies to those who are compelled to leave a temporary home because confinement under such circumstances undoubtedly causes many women to seek hospital aid or in some cases, the knowledge that it may be obtained without cost, spurs them on to make use of such facilities. This state of affairs is, of course, entirely wrong, for when such families have once experienced the advantages accruing from hospital care, the fact that they have obtained them for nothing, does not dis-

turb them. In a certain sense they have pauperized themselves and kept a more worthy applicant out of the bed which was thus occupied. I think it is quite generally credited among those whose practice brings them into contact with large maternity service, that many women apply with the idea of paying a small fee for their hospital accommodation. They do not wish to be included among the charity patients and yet their environment is such that in most instances a delivery would be accompanied with unpleasant or even dangerous consequences. Such women have no desire to go into the free wards for obvious reasons, and it is most unfortunate that they must be turned aside because the only other alternative ordinarily offered to them is a private room at \$25.00 or more per week, a sum far beyond their means. On the days when I have charge of the antepartum work at the Lying-In Hospital, scarcely a day passes when this request is not made. What finally becomes of these patients when we turn them aside I do not know, as there are very few facilities offered in New York City for their accommodation. In desperation they finally allow themselves to be admitted at one institution or another as free patients, and when once they have received such benefits free from financial obligation, they will be led to resort to the same on future occasions and when once the start has been made they will always be more or less of a burden on the hospital and so indirectly on the community. Moreover, at the present time we meet with a large and constantly growing class of people who from force of circumstances can never elevate themselves much above the financial status which they occupied at the beginning of their married life, for the chances of advancement for many employees in mercantile establishments are not very favorable and although one out of ten may succeed in advancing himself to a position of greater responsibility and financial return, the other nine remain approximately at the same level. Such people, however, should be made to retain their self-respect and no where it seems to me, is this lost more quickly than in extending to them absolutely free hospital care. They should be made to pay and they are usually very glad to pay a moderate fee for these services.

There is another feature in connection with the residence of obstetrical patients in a hospital which is of great importance; namely, the opportunities which all of these women would have of observing the manner in which they and their babies are cared for. This is a most valuable object lesson and thoroughly in accordance with the ideas of the present time.

In order to determine what facilities are offered by maternity hospitals in general for the care of women in moderate circumstances the writer has made a partial canvas among such institutions, which is not intended to be complete, but is yet sufficiently so to afford an idea of what has been provided in this direction. A questionnaire containing requests for the information noted below, was sent to a number of obstetricians connected with the leading maternity hospitals in the United States and herewith I desire to express my obligation to those who kindly furnished me with the desired facts. The questions were as follows:

1. Does your institution provide obstetrical care for patients who are able to pay a hospital fee of from \$10.00 to \$15.00 per week?
2. If so, what facilities do you provide for this service? Number of beds, wards, rooms, etc.?
3. Is the hospital or the attending physician permitted to charge a fee for attendance on these cases?
4. If the provisions referred to exist in your institution, what are the results as regards the number of patients and the financial return? Has the system paid?
5. From your personal experience in the matter, do you favor a retention or extension of such a system of special wards for patients in moderate circumstances?

For lack of time and other reasons, the inquiry was necessarily limited in its range, but sufficient knowledge has been obtained by this means to permit us to form a fairly satisfactory judgment of the situation as it exists today. A total of thirty-one institutions is included in this report, stretching across the Continent from Boston to San Francisco. In only nineteen of these can patients be accommodated at rates of \$15.00 per week or less, although the proportion of such beds in each of these hospitals is apparently sadly inadequate. The exact number of beds available cannot be stated, as in several of these hospitals a fee for the same is only collected when the patient is able or willing to pay. Accommodations at less than \$15.00 per week are usually in wards, although in some institutions two or three patients can be accommodated in a single room.

At this point it may be well to summarize the replies received from the various institutions to whom the questionnaire was sent.

Dr. F. S. Newell, of the Boston Lying-In Hospital, states that this institution admits all patients living in Boston for \$20.00, or such part as the patient can pay. This admission fee covers the entire charge for board and treatment. There are three wards of nine beds, and three wards of six beds each, no private rooms being provided. He states that they lose money on every patient, and probably one-third of the cases are free or pay less than \$10.00.

Dr. A. K. Paine, of the Mount Sinai Hospital, in Boston, stated that they had no facilities for caring for this class of patients. He informs me that there are a number of semi-private institutions in Boston in which the minimum charge is from \$15.00 to \$20.00 per week, but none which confined an obstetrical case for a maximum fee of from \$10.00 to \$15.00.

Dr. Henry D. Frey, of the Maternity Department of the Georgetown University Hospital, in Washington, states that they have rooms with two beds at \$15.00 per week and three wards containing forty beds, for which \$1.00 per day is charged. The attending physician is allowed to charge a fee in these cases, but if delivered by the house-staff, there is no charge. He states that \$10.000 per week just meets the expense of each patient and a charge of \$1.00 per day in the ward beds, a loss of 26 cents.

Dr. A. B. Spalding, of the University Hospital of San Francisco, states that they have one ward of eight beds, for which a fee is charged, but that they intend shortly to extend this service to forty beds at \$10.00 per week each, with no professional fee.

Dr. W. J. Maroney, of St. Anne's Maternity Hospital, in New York City, writes that they have three double rooms at \$15.00 per week and a small ward containing seven beds at from \$9.00 to \$10.00 per week, in all of which the attending physician or the hospital is permitted to charge a fee.

Dr. Elizabeth Jarrett, of the New York Medical College and Hospital for Women, stated that they have two rooms of two beds each, for which the charge is \$12.00 per week and a fee of \$5.00 for the operating room. Only their own alumni have the privilege of sending patients into these special rooms. Occasionally they put such cases in the larger wards in which there are six or eight beds. The attending staff is permitted

to charge from \$15.00 to \$25.00 in each case. Dr. Jarrett states that although not at first used for clinical material, the patients now seem to have no objection to the same.

Dr. G. L. Brodhead, of the Post-Graduate Hospital, New York City, reports that they have a ward of eight beds for such patients, although comparatively few pay for these accommodations.

Dr. J. O. Polak, of the Long Island College Hospital, in Brooklyn, states that they have four beds at \$10.00 and four at \$14.00 each, and the attending physician is permitted to charge a fee in these cases. These accommodations are always occupied and they plan to extend the system.

Dr. J. W. Williams, of Johns Hopkins, writes that all patients are expected to pay what they can, it being estimated that \$10.00 per week covers the cost of a patient in the free wards. He assumes that 25 per cent of their ward patients make such payment, although they are treated exactly as the free patients and are used for clinical instruction. The attending physicians are not permitted to charge a fee in such cases. Dr. Williams considers that the greatest need in modern hospitals, is provision for self-respecting patients who are only able to pay small fees. Such patients must be taught that they are objects of charity and are not paying their own way, for he believes that unless private patients pay at least \$25.00 per week, they are a distinct loss to any hospital.

Dr. H. T. Sutton, of Zanesville, Ohio, states that in the local hospital, which may be taken as an example of what pertains in similar small communities, they have private wards and rooms in which the charge is less than \$15.00 per week, with two patients each, and although the system does not pay, he believes in its continuance in his community. He reports a total of forty-five women thus confined from January 1st to September 20, 1913.

Dr. O. H. Humpstone, of Brooklyn, states that at the Methodist Hospital they have one ward of four beds at \$15.00 per week, and at the Jewish Hospital they have one ward with six beds at \$10.00 per week. In both institutions the attending physicians are permitted to charge a nominal fee. He believes that the system pays because of the self-respect engendered in such patients and the good care given them, that it likewise adds a little to the income of the attending physician from a

class of patients from which he probably would not otherwise receive any fee. He states, moreover, that the superintendent of one of these hospitals says that he would be glad to develop a service for this class of patients, whereas the superintendent of the other plainly states that he is not in favor of private wards for maternity cases and that these should be confined at home, on the theory that they do not add to the financial success of the institution and block the beds for poor charity cases, the care of which is the first purpose of our hospitals. I might add by way of comment that the latter view is incorrect from every economic and medical viewpoint. A modern hospital should certainly occupy a different standing in the community.

Dr. A. A. Hussey, of the Brooklyn Hospital, reports that this institution has only one two-bed ward at \$12.00 each and one small room at \$15.00. A small fee may be charged by the attending physician for these cases. There is demand for more beds of this kind than can be supplied, and Dr. Hussey writes that in their new hospital they will provide for three or four times the present number.

Dr. John Wyeth, of the New York Polyclinic Hospital, states that they have two private wards containing five beds each, for which \$15.00 per week is charged. The system has been in operation too short a period to permit any deductions, but Dr. Wyeth is in favor of a retention and an extension of the same.

Dr. P. W. Van Pemyea, of the General Hospital, in Buffalo, reports two wards of ten beds each, for which \$8.00 per week is charged.

Dr. Austin Flint, Jr., of the Manhattan Maternity Hospital, in New York City, stated they had three wards with six beds each, for which a fee of \$10.00 was charged. He believes that the lack of such accommodations is to be greatly regretted and the same should be extended.

Dr. Edward P. Davis, of the Jefferson Hospital, in Philadelphia, is strongly in favor of enlarging the system as much as possible. They only have two beds in one room, at \$10.00 each.

Dr. F. J. Taussig, of the St. Louis Maternity Hospital, reports that in this institution there are two wards with twelve

beds each, for which a moderate fee is charged. He is decidedly in favor of an extension of the system.

Dr. J. B. DeLee, of the Chicago Lying-In Hospital, states that in the new hospital, now under construction, there will be fifty beds at moderate prices, although there are only seven in the present building. Notwithstanding that there is no profit in this system, which costs \$2.50 per day per patient, he is in favor of the extension of the same.

Dr. Thomas Watkins, of St. Luke's Hospital, Chicago, states that they have seventeen beds at rates of less than \$15.00 per week. A loss is claimed on every patient, which must be met from other sources of income; nevertheless, he is in favor of extending the system.

Dr. W. P. Manton, of the Woman's Hospital, in Detroit, writes that they have no special facilities for cases able to pay a moderate fee and that the patients pay whatever they can afford. He is thoroughly in accord with the necessity for providing accommodations for this class of cases.

Dr. Henry Schwarz, of St. Louis, reports that in the new hospitals of Washington University, thirty-six ward beds will be provided, for which a fee of \$7.00 per week will be asked, and about eight rooms at \$15.00. At St. Ann's Maternity, in the same city, there are twenty-four rooms, ranging in price from \$12.00 to \$15.00 per week. Although the system does not pay, he believes that if a hospital will make this a leading or exclusive feature, it can be made to pay. Moreover, he believes that to provide at reasonable cost, hospital care for people of moderate means, seems the truest form of charity. The care of the sick poor on the other hand, is plainly the duty of municipal institutions.

The Providence Lying-In Hospital provides accommodations for patients at the rate of \$20.00 for two weeks, which includes attendance during the confinement and the patient's board. The wards contain five beds for this class of patients.

In addition to the above, letters sent to other well-known gynecologists and obstetricians disclose the fact that no provision whatever for caring for this class of patients is made in institutions with which they are connected. One and all, however, have expressed themselves in favor of the introduction and development of a system of this kind. We find, for,

example, that the Lying-In Hospital, and the Sloane Maternity Hospital of New York City, which are among the largest and best equipped maternity institutions in this country, fail to make any provision whatever for pay patients in moderate circumstances.

An inquiry of this kind could doubtless be extended with similar replies from other institutions, but it may be assumed that for practical purposes, the above is sufficient to call attention to the desirability for further agitation and study of this important question.

In an attempt to solve this problem a number of factors must be taken into consideration. We have to deal in the first place with the attitude of the physician in general practice towards a scheme of this kind, and we must also approach the question from the standpoint of the hospital, as to whether such facilities can be economically provided and not interfere with the remainder of the work in the institution. Regarding the first point, there is no doubt whatever but that the average physician would benefit in the end by this scheme of providing proper hospital care for certain classes of his patients. The nursing question is a most important one in this connection, as the physician must usually rely on a so-called practical nurse in such cases, whose ministrations both to the mother and baby are more often based on hearsay and personal experience, rather than on any definite training. Especially in the case of a primipara with possible pelvic contractions or other complicating features is a labor under certain home conditions to be looked forward to with satisfaction. The larger proportion of labors at the present day are not strictly physiological and complications are unfortunately all too frequent. If a physician could observe and study a case of pregnancy in the presence of possible complications and could feel assured that if necessary his obstetric patient would be properly taken care of in a hospital, and returned to him without having been pauperized by free treatment, it would seem as if his own standing was considerably improved.

As already stated, each community must solve its individual medical problems and a scheme of supplying this class of obstetric service in one community would not be adapted to that of another. The question is one which will require gradual elucidation and working out, but for the present, provision might be made by the existing hospitals to provide service of this kind. Our inquiry showed us, for example, that such

large institutions as the Lying-In and the Sloane Maternity Hospitals, of New York, make absolutely no provision for this class of patients, although in each of them, private rooms are provided for people who can pay thirty dollars or more a week for their accommodations. The only other alternative is to have the women in these and similar institutions in moderate circumstances who may choose or require hospital care, go into the ordinary ward, which, for obvious reasons, will not prove suitable or satisfactory to the class of patients here under consideration. Most hospitals admit that the bed at \$10.00 per week is not a paying venture. This, however, ought not to weigh in the scale against the adoption of a system of this kind, as the income would certainly be enough to pay the greater part at least of such expense. Again, if viewed in another light, it would perhaps show a profit if we compared this with the cost of a patient in the free ward for which there would be absolutely no financial return.

The objection may be made that provision for providing obstetric hospital facilities with the possibility of a deficit, will invade the field of philanthropy, but if this is done in order to furnish beds for the care of ordinary surgical or medical cases, why should it not be extended to include pregnancy? Patients presenting the after-effects of accidents or complications of labor and the puerperium, many of which may be included under the head of plastic and reparative operations, find a ready domicile in our hospital wards for a moderate fee, but the self-respecting woman who desires to pay a small sum for her care in a hospital because she needs its assistance for one reason or another, finds it impossible in many instances to secure the same. Such a state of affairs may justly be regarded as the height of inconsistency.

REPORTS

NEW ENGLAND SUB-COMMITTEE ON OBSTETRICS

JAMES LINCOLN HUNTINGTON, M. D., Boston, Secretary

The attempt was made this year to make a thorough canvass of the following obstetrical conditions as they exist in the six states of New England:

- A. The status of obstetrical education in the medical schools
- B. Standards of obstetrics in actual practice
- C. The activity of the midwife

In this attempt we have been only partially successful. In the following contributions from the individual members of the committee it will be seen that many of them have been doing pioneer work, and these results form the most important part of this report.

There are at the present time eight medical schools in New England, one, Dartmouth, has discontinued its clinical courses, and the granting of the degree of M. D. One is not recognized by the Massachusetts Medical Society and is ranked in the lowest class of existing medical schools by the American Medical Association. Of the remaining six we have obtained reports from five.

A. STATUS OF OBSTETRICAL EDUCATION IN THE MEDICAL SCHOOLS

MAINE

Bowdoin Medical School

Obstetrics is taught at the Bowdoin Medical School by a lecture course during the third year of three lectures a week. One quiz by the assistant and a supplementary course in sections, on the manikin, during the spring term. No definite number of cases is required at present, but a certificate is required from each student that he has taken an out-patient course in some lying-in hospital of at least two weeks' duration. At present there is an arrangement with the out-patient department of the Boston Lying-In Hospital whereby men are taken the summer after they have completed their theoretical work and most of the students at Bowdoin since the arrangement went into effect have availed themselves of this opportunity, although some of the men get their required two

weeks' service elsewhere. There is a "temporary home" in Portland where about twenty-five or thirty-five women are delivered during the year. The normal cases are delivered by the students under supervision and they observe the operative cases if any occur. Here they also have an opportunity to make ante-partum and post-partum examinations. There is an out-patient clinic in Portland which is just being started, ten cases being delivered by students under supervision last year.

MASSACHUSETTS

Boston University School of Medicine, Department of Obstetrics

Boston University School of Medicine has always had a well-grounded as well as comprehensive course of obstetrics in its school. The department offers students unparalleled opportunities to familiarize themselves with this important branch of medicine.

The didactic teaching extends over two full years, with numerous quizzes and frequent demonstrations during the second and third years of study. During the first year's work in obstetrics, in addition to the didactic portion, the student is required to attend the maternity clinics at the Out-Patient Department of the Massachusetts Homoeopathic Hospital, open daily, in which are treated all diseases pertaining to pregnancy, examinations held of obstetric cases and suitable prescriptions given therefor.

During this year, the students in sections attend the examinations of patients in the obstetric department of the hospital. Thorough demonstration is given in hygiene and management of the cases of pregnancy, palpation, pelvimetry and the actual bedside teaching of the puerperium and conditions pertaining to the new-born child.

Clinics with demonstration of actual cases are held at which both years' students are in attendance.

During the year, one student may attend with an older student in the outside work of the dispensary.

The second year's study includes demonstrations of operative work in obstetrics, clinics at the hospital, and at, or near the completion of the lectures, the student is given bedside instruction with the actual work done in taking care of patients at their homes in the district. The minimum number of cases attended by any senior student during the past year was

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ten, the number frequently reaching fifty or more. Before graduation, all students are required to furnish satisfactory written reports of at least six obstetric cases attended personally by them.

At all stages, the student is led to observe the necessity for careful work and its tremendous importance to the future lives of both mother and child.

To the student or the graduate desiring more specific instruction or opportunity for work and observation, the school with its faculty and the hospital with its staff, are both ready and anxious to serve.

The imprint of the importance of the obstetrician and his work, given to the medical student, will in time reveal itself in the acceptance and the demand for nothing but the best that can be given the mother and her new-born infant.

BOSTON (Continued)

Tufts College, Department of Obstetrics

Prof. L. V. Friedman reports as follows: The Department of Obstetrics at Tufts requires of the third year students, attendance at two lectures and one recitation weekly throughout the school year. Each student must attend six women in confinement and write full reports of the labors and convalescences. In the past year most of the students had seven or eight cases and some had as many as fourteen. While engaged in this work, they see the common obstetric operations, performed by instructors from the school.

In the fourth year each student receives instruction, in small sections, in operative obstetrics. This course is given on the manikin and each student performs all of the common operations under the guidance of the instructor.

Harvard Medical School

Dr. R. L. De Normandie of the Department of Obstetrics reports as follows: Instruction in obstetrics in the Harvard Medical School is given by didactic lectures, conferences and clinical teaching. The teaching staff consists of the professor, the assistant professor and instructor, four assistants and an alumni assistant. None of these men give up their entire time to teaching. This year for the first time will didactic lectures be given to second year students—one lecture a week during the second half year. In the third year lec-

tures are given twice a week during the first half-year and once a week during the second half-year. During this year the students in turn are assigned to duty in the out-patient department of the hospital for periods of 10 days. All students are required to take charge of at least 6 cases of labor under supervision and instruction, to care for these cases during the convalescences and to make full written reports of these cases. Many of the students look after from 20 to 30 patients. Conferences twice a week are held by the assistants with the students when the problems which come up in their daily work are informally discussed. The fourth year offers an elective course in obstetrics. In this course the students live at the hospital the first part of the month and look after the cases as they come in. When they are not busy during the morning the students make the visit with the physician on duty at the hospital and the problems which arise in the wards are fully and carefully discussed by the physician and students. The convalescence is followed by them the same as in the third year. Operative obstetrics is taught the students by five two-hour exercises at the medical school as a part of the fourth year work, besides their seeing many operative deliveries by the hospital staff. A large percentage of the fourth year students elect this course.

CONNECTICUT

Yale Medical School

Prof. Ramsey of the Yale Medical School states that the required course in obstetrics includes four lectures a week for one of the two terms in the junior year, with some six demonstrations on the manikin during that year, a term of service at the dispensary during the senior year, delivering at least six patients in the out-patient department under observation. This number of cases varies somewhat but rarely exceeds ten unless a student spends part of his summer vacation in the dispensary when he may deliver as many as twenty cases. While on service in the out-patient department he has an opportunity to measure and examine the cases as they apply for treatment in the pregnancy clinic. During the fourth year the student also has some six exercises on the manikin in operative obstetrics. The out-patient department cares for some 200 cases during the year. Cases are supposed to report to the out-patient department and be examined in the pregnancy clinic after which they report monthly or oftener if necessary.

B. CONCERNING STANDARDS IN ACTUAL PRACTICE

Your committee through its activities succeeded in preventing the passage of a bill before the Massachusetts legislature to provide for the registration of midwives. The committee has also been instrumental in presenting the following resolutions to the Council of the Massachusetts Medical Society to clearly define the policy of that organization with regard to the practice of obstetrics. These resolutions have already been endorsed by the staff of the Boston Lying-in Hospital, the Boston Obstetrical Society, the Department of Obstetrics in Tufts University, as well as by many physicians, not only in Boston but in other parts of the State of Massachusetts.

WHEREAS, by Chapter 76, sections 8 and 9, of the Revised Laws of the Commonwealth of Massachusetts, the midwife was excluded from the practice of her profession within the confines of this state and by a decision of the Supreme Court handed down by Justice Rugg in the case of the Commonwealth vs. Porn the law was held to directly cover the activities of the midwife and made effective.

And whereas Chapter 29 of the Revised Laws of the Commonwealth of Massachusetts repeatedly uses the word Midwife (Section 3, "Physician and midwife shall make and keep a record, etc.," and later "the fee of the physician or midwife shall be twenty-five cents, etc." and later "the physician or midwife who neglects, etc.") thus seeming to give her legal status.

And whereas by House Bill 678 presented to the Great and General Court of the Commonwealth of Massachusetts January 9, 1913, a definite, although unsuccessful attempt was made to legalize the midwife and admit her on equal terms with the physician to the practice of obstetrics, this bill being favored by certain members of the Massachusetts Medical Society.

And whereas persistent reports are being received that members of the Massachusetts Medical Society are signing birth returns of infants delivered by midwives without a physician in attendance.

Be it Resolved that we, the Council of the Massachusetts Medical Society, put ourselves on record as of the firm opinion that the practice of obstetrics is a vital and essential branch of the practice of medicine and requires the care and supervision of a graduate in medicine and that there is no place for the untrained practitioner in this field of medicine within the Commonwealth of Massachusetts, that no training other than that leading to the degree of M. D. is to be considered adequate or sufficient for engaging in this practice, that untrained persons practicing obstetrics are in open defiance of the law and should be prosecuted when apprehended. That as soon as public sentiment within and without this society can be sufficiently aroused a bill shall be presented to the Great and General Court of the Commonwealth of Massachusetts which shall provide for the omission of the word midwife from the statute books thus bringing the law up to the date; that members of this society are hereby enjoined from handing in birth returns on cases over which they have had no supervision when delivered by a midwife; and that it is the opinion of this body that a physician signing a birth return assumes the responsibility for that case.

*** SUPPLEMENTAL REPORTS****PRENATAL AND POSTNATAL WORK, DEPARTMENT OF HEALTH****Boston**

Prenatal and postnatal work are done by the Division of Child Hygiene, a department within the Board of Health.

Prior to June, 1912, two nurses were engaged in this work. The utter futility of trying to cope with existing conditions with such a corps of nurses was soon apparent and a request was made for more nurses.

Accordingly, in June, 1912, the corps of nurses was increased to ten. The city was divided into districts and the nurses were assigned as follows:

Ward 1 and 2, one nurse.	Wards 13, 14 and 15, one nurse.
Wards 3, 4 and 5, one nurse.	Wards 16, 20 and 24, one nurse.
Ward 6, two nurses.	Wards 17, 18 and 19, one nurse.
Wards 7, 9, 10 and 12, one nurse.	Wards 21, 22, 23 and 26, one nurse.
Wards 8, 11 and 25, one nurse.	

Owing to the rapid approach of hot weather and the resulting increase in the number of cases of enteric disease among babies, all efforts were concentrated on post-natal work. The home of every baby born in Boston was visited by the nurses and information and advice given on the value and importance of breast feeding. Naturally, the bulk of our work was among the bottle-fed babies of the poor. Repeated visits were made to these babies during the summer months and every effort made to see that they were fed under medical supervision.

In October, 1912, prenatal work was resumed on a much larger scale. During the preceding four months, the nurses had covered the whole city in their postnatal work and had established a clientele among whom prenatal work was resumed. Monthly visits were made to expectant mothers and a friendly relation established between the nurse and the patient. Advice on the care of the breasts, on diet, and on matters of personal hygiene was given on these visits and an examination of the urine made.

The following card was used to record the work of this sub-division.

* See pages 187-190 for report of Prenatal Work of Committee on Infant Social Service of the Women's Municipal League of Boston.

DIVISION OF CHILD HYGIENE—PRENATAL

Name	Age	Address	Ward
PREVIOUS PREGNANCIES		PRESENT PREGNANCY	
Number		Duration	
Stillborn		General Health	
Miscarriage		Attendance	
Attendance			
Feeding			

RECORD OF VISITS

Date	Condition	Urine	Oedema	B. Pressure	V. Veins

CONFINEMENT

Date	Attendance	Result		Condition		Feeding	Sex
		Mother	Baby	Mother	Baby		

Nurse

DIVISION OF CHILD HYGIENE—FAMILY

Name	Address
HUSBAND	WIFE
Character	Character
Occupation	Occupation
Nationality	Nationality
Age	Age
CHILDREN	HOUSING
Number Living	Number of Rooms
Ages	Condition
Number Dead	Boarders

The following tables show the amount of work done from June, 1911, to December 31, 1912:

PRENATAL

			<i>Attendance.</i>	<i>Feeding</i>	
No. Cases.....	885	Physician	60	Breast-fed	322
No. Visits.....	1,716	Hospital	134	Bottle-fed	51
No. Babies Born	413	Midwife	219	Breast and bottle-fed	40

POSTNATAL

		<i>Feeding</i>	
No. Cases	17,429	Breast-fed	13,129
No. Visits	41,001	Bottle-fed	2,703
		Breast and Bottle-fed....	1,597

Although the year 1912 showed an encouraging reduction in infant mortality in Boston, plans were made early in the spring of 1913 for more intensive work. Ten additional nurses were appointed in June, 1913, for a period of four months, making a corps of nineteen nurses. Prenatal work was again suspended during the summer months and every energy directed toward lowering the death rate among babies.

The following tables show the amount of work done for the period January 1, 1913, to October 1, 1913:

PRENATAL

			<i>Feeding</i>	<i>Attendance</i>		
No. Cases	223	Breast-fed	62	Physician	40	
No. Visits	413	Bottle-fed	5	Hospital	23	
No. Babies Born..	70	Breast and Bottle-		Midwife	7	
		fed	3			

POSTNATAL

		<i>Feeding</i>	
No. Cases	13,327	Breast-fed	10,323
No. Visits	38,337	Bottle-fed	2,017
		Breast and Bottle-fed....	987

The most encouraging information to be gleaned from the prenatal tables is the decline in midwife attendance. We attribute this decline to the personal influence of the nurse, who has been able to convince expectant mothers that their future was more secure in the hands of a physician.

The encouraging news, due to postnatal activity, is that the death rate among infants for the four summer months, June to September, 1913, was the lowest in Boston's history.

The following table shows the death rate under one year per 10,000 inhabitants, from 1900 to 1913 (1913 is for the first 9 months):

1900.....	42.96	1905.....	36.72	1910.....	33.88
1901.....	40.28	1906.....	40.43	1911.....	32.63
1902.....	39.27	1907.....	37.57	1912.....	30.36
1903.....	37.36	1908.....	42.81	1913.....	29.91
1904.....	37.50	1909.....	32.42		

I desire here to call attention to the message of his Honor the Mayor to the City Council, recommending an appropriation for additional temporary nurses:

CITY OF BOSTON

Office of the Mayor, June 23, 1913.

To the City Council:

I beg to transmit herewith a communication from the trustees of the Milk and Baby Hygiene Association, under date of June 9, urging the appointment of ten additional nurses for the Department of Child Hygiene, at least during the summer months.

I am informed that of the 20,000 babies born in Boston during the past year 2,136 of this number died before reaching the age of one year, and that 75 per cent of this number of deaths were preventable. I am further informed that the high death rate among infants under the age of one year is due to lack of information on the part of mothers. Previous to a little over a year ago all efforts to assist mothers in caring for their babies were confined to private charities. Last June, in the Division of Child Hygiene, ten nurses were appointed. These nurses attempted to cover the whole city and to assist mothers in the care of infants. Considering the small number of nurses, very efficient results were accomplished and the death rates among infants was materially reduced.

I heartily agree with Doctor Gallivan, the director of the Division of Child Hygiene, that work of this nature is as important a function of government as the police, fire and school activities, and I therefore earnestly recommend the passage of the accompanying order transferring the sum of \$2,250 from the Reserve Fund to an appropriation to be expended under the direction of the director of the Division of Child Hygiene of the Health Department, to provide for the appointment of ten temporary nurses for a period of three months.

Respectfully,

JOHN F. FITZGERALD, *Mayor*.

Such recognition of this work which has formerly been wholly done by private charities augurs well for the awakening of the public conscience, and is a well deserved tribute to the pioneers who have blazed the trail, and have waged ceaseless war on customs, practices and methods which are responsible for the high death rate among babies.

OBSTETRIC CARE OF THE MAVERICK DISPENSARY

East Boston, Mass.

A. B. EMMONS, 2nd, M. D., Physician-in-Chief

How could complete obstetric care be furnished to the poor of a community at cost within the means of almost any patient, and yet be nearly, or entirely self-supporting? This was the problem which we have attempted to solve in one city section.

East Boston presented an almost isolated community of about 60,000 inhabitants, roughly, one-half being foreign, largely Italian, with many recent immigrants. We have no medical students to care for the normal cases and no opportunity to teach.

The following scheme was evolved and is now in operation. The patient applies at the dispensary. Her social history is taken at the admission desk by our social worker. The patient is asked to pay \$5 at the time of registration, usually at this visit, occasionally, at a subsequent visit. After confinement another \$5 is paid, making \$10 for the complete service.

She next is seen by the doctor in charge of the clinic, who is a man of broad obstetric training. He takes her medical and previous obstetric history, examines her, including the chest, pelvis, urine, blood pressure, and predicts the probable outcome. She is then given prenatal advice and instruction, with instructions to return one month before the expected date, for re-examination.

Her name is given to the prenatal nurse, who visits her in her home, at intervals not over ten days. This nurse is especially trained in prenatal work and examines the urine and blood pressure, as well as observing her general health and surroundings. The nurse's records of visits are entered immediately at the clinic. She instructs the district nurses in prenatal care.

The name, address and points of medical interest in the case are mailed to the doctor who is to deliver her. The prenatal nurse also reports to him anything abnormal and if necessary, he visits the patient and treats her, carrying the responsibility of the case, consulting the physician in charge when he desires.

At present there are two physicians on duty, both graduates of the Boston Lying-In Hospital. They deliver the cases, when called by telephone, and make what they consider the necessary number of postnatal visits, usually three to five. For this service they receive \$5 a case, and are paid by the dispensary, turning in all money collected by them.

The puerperium or postnatal period is also covered in the usual way, by the district nurse. Some day we hope she may be the same individual as the prenatal nurse. We hope still further that we may soon have a nurse present at the delivery to assist the doctor. On account of the great irregularity of the time needed this is always a hard problem to solve. But as the clinic grows we hope to work it out satisfactorily.

To summarize: The case is booked by a paid social worker; examined, pays \$5 at the first visit. A prenatal nurse visits her every ten days till delivery. She is delivered by a doctor especially trained in obstetrics, paying him a second \$5. She is visited by the doctor and a district nurse for ten days following confinement.

The dispensary pays the doctor \$5 for every case. If the case pays the full fee the dispensary pays the Instructive Districting Nursing Association \$2, and retains the other \$3.

Since February 1st, when the obstetric clinic was started 18 cases have been cared for up to October 15th, with no maternal death and one foetal death on the 9th day from "convulsions."

One hundred and thirty dollars have been received, an average of \$7.22 per patient.

I am informed by the doctor that from his point of view, the arrangement is very satisfactory. He is guaranteed \$5 for each case. We have to thank the Nursing Association for excellent nurses. Our social worker is a distinct help especially on the financial end of which she has charge.

In conclusion, I must say that with so few cases and in such a short time, no general statements seem justified, but we feel confident that the experiment is going to be successful.

The scheme is simple, an organization of the forces available, in most communities, independent of medical schools. There must also be added to this scheme a few available surgical beds in a good hospital where the major operative work can be properly handled.

We realize that the personal skill, enthusiasm, and conscientiousness of the social workers, nurses, doctors and even trustees, is what makes success; that no system can supplant or succeed without these personal human qualities.

It is our hope, however, that even when the glamor of newness has worn off that there may still be left the foundation of a system insuring good, safe, obstetric care to the immigrant class of our population.

**REPORT ON THE WORK OF THE MASSACHUSETTS COMMISSION
FOR THE BLIND FOR PREVENTION OF BLINDNESS FROM
OPHTHALMIA NEONATORUM**

DURING THE YEAR BEGINNING NOVEMBER 1, 1912

**HENRY COPLEY GREENE, Field Agent for Conservation of Eyesight
A Member of the New England Sub-Committee**

In answer to the chairman's questions in regard to ophthalmia neonatorum the following is submitted:

The work of the Commission for the Blind against ophthalmia neonatorum may be divided into educational work, legislative work and the enforcement of existing law.

The commission's educational output with regard to ophthalmia neonatorum included a traveling exhibit, pamphlets and leaflets, and speeches and personal interviews by the agent for the Conservation of Eyesight. The exhibit, originally prepared for the Congress on Hygiene and Demography, shows not only the prevalence of various causes of blindness but various medical and social efforts for their eradication. This exhibit forms a part of the traveling health exhibition which the State Board of Health is showing in the public libraries of various cities. The commission's new leaflets include one prepared for the New Hampshire Health Day and since widely distributed in Massachusetts, and a leaflet on infant hygiene prepared in conjunction with the Milk and Baby Hygiene Association and printed by the State Board of Health. This infant hygiene leaflet, which contains a warning against ophthalmia neonatorum, is intended for distribution to the mothers of new-born babies, as soon as each birth is registered; and we are informed that the State district health inspectors are urging its use in the different cities and towns.

The more personal work of education has consisted in interviews with various physicians involved in ophthalmia cases and in addresses—for example to the Berkshire County Association of Boards of Health, to a nurses' club in Worcester and to the local medical society at Haverhill. This last address, which is an attempt to set up definite standards of treatment for ophthalmia neonatorum, has been distributed by the State Board of Health to all local boards.

In the course of its legislative work the commission helped kill the bill in the last legislature which provided for the registration of midwives without examination. It framed and

helped to pass a bill empowering the State Board of Health to require the reporting of diseases in any way that it sees fit and providing a penalty for failure to report as directed. This law makes it possible for the State Board to require the reporting of gonorrhea and syphilis by hospitals and institutions without requiring the reporting of these diseases by physicians. It also makes possible the reporting of these diseases by office number, as in California, instead of with the name and address of each case. The commission also helped to draft and pass two eugenic bills, one providing that applicants for a marriage license be furnished with a list of legal impediments to marriage and required to take oath as to whether they suffer from such impediments; the other providing for an investigation of impediments to marriage by the joint boards of health and insanity. If these enactments are properly supported by such societies as the Association for the Study and Prevention of Infant Mortality, they should ultimately result in more accurate knowledge as to the prevalence of gonorrhea and more adequate provisions for its treatment. This legislation should also result in an authoritative statement by the State Boards of Health and Insanity as to what diseases should be seriously considered by applicants for a marriage license, and by further legislation requiring applicants for a marriage license to take oath as to their physical condition.

In its work for the utilization of existing law the commission has successfully urged the distribution of the State Board of Health's nitrate of silver droppers to midwives as well as to physicians. The commission has also seconded the work of the State Board of Health and the State Board of Charity in connection with lying-in hospitals. A construction of the reporting law by the attorney-general has been secured, making it clear that ophthalmia neonatorum must be reported whenever it is observed and not merely within the first two weeks; and information has been furnished, both to the Boston Board of Health and to the Society for the Prevention of Cruelty to Children, which has resulted in prosecutions by both of these bodies.

The culprits in a few typical cases are as follows:

1. A physician at St. Mary's Infant Asylum, whose failure to report a case of ophthalmia neonatorum at that institution made it impossible for the Boston Board of Health to supervise the treatment and prevent the child's blindness.

2. A member of the Massachusetts Medical Society prosecuted by the Boston Board of Health and fined \$50.

3. A midwife prosecuted by the Boston Board of Health and though the baby in her care became totally blind, fined only \$10.

4. A French physician in Holyoke successfully prosecuted by the S. P. C. C.

In the four instances just mentioned only two of the babies became blind. During the last year, however, four cases of practical blindness in both eyes, resulting from ophthalmia neonatorum and neglect, have been brought to the attention of the Commission for the Blind. In other words, 2 per cent of our new cases of blindness are still due to ophthalmia neonatorum. This per cent is the same as that for the year ending January 1, 1913, a percentage verified by a state-wide inquiry among lying-in hospitals, oculists and physicians. While this percentage is much lower than it has been in the past it should be still further reduced. If it is to be further reduced it must be done by lines of work in which the Association for the Study and Prevention of Infant Mortality is actively interested. Such leaflets on the general subject of infant hygiene, including ophthalmia neonatorum, as that published by the State Board of Health, should be universally distributed; the average of obstetric service should be raised; and the present sporadic prenatal and infant hygiene work should be extended, and unremittingly carried on throughout the state by social minded physicians and nurses.

SUPPLEMENTAL REPORTS—Continued

FALL RIVER

The Civic Department of the Woman's Club of Fall River furnished a fund to enable the District Nursing Association of Fall River to investigate the vital statistics of children born in the city during the months of June, July and August and for a period of three months from each birth. The histories of the children born during the month of June are the only ones now available, as three months have not yet elapsed since the birth of children born during the latter months.

The population of the city is approximately 120,000; and the parentage is as follows:

Parents and grandparents born in the United States, i. e.....	19
American extraction.....	19
English ".....	24
Irish ".....	11
Italian ".....	8
Fr.-Canadian ".....	86
Portuguese ".....	68
Syrian ".....	3
Jewish ".....	3
Slavic ".....	38
Mixed ".....	38
	<hr/>
	298
Histories uncompleted	3
	<hr/>
	301

Of the above births, 196, or 65 per cent were attended by physicians; 99, or 33 per cent, by midwives; and 6, or 2 per cent, with no attendance.

The total infant deaths during three months were 42. Of these, 33, or 78.5 per cent, were of children attended by physicians at birth; 8, or 19 per cent, were of children attended by midwives; and 1, or 2 per cent, were unattended.

Of the births attended by physicians, 16.8 per cent died; attended by midwives, 8 per cent died; and of those unattended, 16 per cent died.

Of the above number, 4, or 1.3 per cent, were still born. This figure is apparently abnormally low and investigation for a longer period would probably indicate a larger percentage of stillbirths. Moreover, some births listed herein as premature would be reported as stillborn.

Of the total number of births, 1.6 per cent were premature, resulting immediately in death, and death resulted immediately from other causes in an additional 1.6 per cent of the total number of births; making the total number of deaths attending birth, including still born, 14, or 4.6 per cent, while the total percentage of deaths to births was 10.6 per cent.

Deaths may be attributed as follows:

18 to Prenatal causes:

Stillborn, 4

Premature, 11

Bright's disease, 1

Syphilis, 1

Exhaustion, 1

14 to Prenatal causes or improper attendance at birth:

- 4 to neglect or improper care after birth:
 - Improper food
 - Condensed milk
 - Condensed milk and neglect
 - Drunken mother, filthy home, cruelty, neglect
- 4 to after acquired diseases:
 - Whooping cough
 - Cholera infantum
- 2 to causes not assigned:
 - Convulsions
 - Malnutrition

The record form used was published by the Russell Sage Foundation.

As soon as the birth reports were received by the Board of Health, copies were forwarded to the District Nursing Association, and a nurse assigned to look up all births in her district. Thereafter the child was observed until death or the termination of the three months period from birth. Because of errors in registration, due to ignorance of foreign names, or carelessness, it sometimes became difficult to locate the family and to correlate a birth with a death; but by figuring the period of life as stated in the death certificate a reasonable degree of identity was secured. This difficulty indicates, however, that vital statistics, as now recorded, are apt to prove misleading unless carefully verified, especially after a lapse of years. Practically every child born during the month of June has been traced to death or the full period of three months, except three who removed from town, and, so far as can be learned, these were in good condition upon removal.

It is not pretended that the experience of one month furnishes a sufficient field for accurate data, the present report being offered as the only one available at the present date. The preliminary report submitted herewith was compiled from the records by Miss Alice Brayton, a volunteer worker.

MIDWIVES IN NEW ENGLAND

MAINE

Dr. H. J. Everett of Portland, Maine, reports the midwife situation has shown no change in the last year. As far as can be ascertained the midwife does not exist in Maine except in isolated instances, and it can be stated with comparative certainty that less than 0.5 per cent of all the births in the State are cared for by midwives.

As to the standing of obstetrics in the State, practically all the physicians, with the exception of the oculists and those limiting their practice to diseases of the ear, nose and throat, are practising obstetrics. In Portland there are some half dozen trained obstetricians, but even among these the recognition for services rendered is less than for similar surgical attendance.

VERMONT

In spite of repeated attempts, we have been unable to meet with any cooperation from the medical profession in Vermont this year, but we have every reason to believe that the midwife is as she was a few years ago, practically non-existent in the Green Mountain State.

NEW HAMPSHIRE

Manchester

Manchester is a mill and manufacturing city, with textile mills and shoe factories as its principal industries, the two largest corporations alone employing 23,000 operatives, a large proportion of this population being foreign-born, or of foreign extraction. Out of the total population of 75,000, census of 1910, there are, approximately, 25,000 French Canadians, 10,000 Greeks, 5,000 Germans, Poles and other foreigners well toward 5,000.

The total number of births for the year 1912 was 2,149, of this number 94 were delivered by midwife, of which there are in the entire city, 6. Of these 6 midwives, 2 delivered 1 case each, 1 delivered only 5, and the remaining 3 delivered 11, 28, 48, respectively.

The remaining cases that would naturally go to midwives were cared for by the District Nursing Association, totaling 144 babies.

So effective has been the work of this association that during the past year the midwife with the largest number of cases credited to her name has decided to move to more lucrative fields.

It is readily seen that the Nursing Association has cared for 61 per cent of the cases that would otherwise have fallen into the hands of midwives. To state the facts in a different manner, the deliveries by midwives have been reduced from 100 per cent to 39 per cent by the work of the association. The total deliveries by all midwives and the association together being considered as 100 per cent.

Of the total births in the city for the year 1912, which were unable to afford either the services of a private physician or pay for hospital accommodation, 4.3 per cent were delivered by midwives, and 6.6 per cent by the Nursing Association.

The department of the District Nursing Association in charge of the obstetrical work, has a physician as its executive head. The medical services of the association are free, the patients being required to pay what they are able towards the other expenses (nurse, supplies, etc.)

This free work is divided among the younger doctors in the city, each serving two or three months gratis during the year, at the call of the association. None of these are at present graduates of an obstetrical hospital, but they are all fresh from their general hospital work. There is but one graduate from an obstetrical hospital in the city. Neither he, nor any other physician in the city, is limiting his practice exclusively to obstetrics or obstetrics and gynecology combined.

The compensation for obstetrical service is much below that paid for surgical work requiring the same degree of knowledge, skill and attention.

MASSACHUSETTS

Boston

To throw light on the activity of the midwife in Boston your committee through the assistance of the Board of Health Nurses had a card catalogue of all the midwives engaged in practice. There has only been one addition to the list published last year. At the present time there are thirty-five known midwives practicing in the city. None of these report births, the certificates all being signed by physicians, some of whom make one visit on the case either during labor or on the first day after delivery. In the heart of the Italian section where there is the greatest activity on the part of the midwife these figures were collected from the records of one of the stations of the Baby and Milk Hygiene by Miss Gallagher. Of the 284 cases applying to the station for advice from October 1st, 1912, until October, 1913:

Midwives attended	119	at birth
Private physicians	65	" "
The Boston Lying-In Hospital	63	" "
Doctors and midwives	20	" "
Hull Street Dispensary	14	" "
St. Elizabeth's Hospital	2	" "
New England Hospital	1	" "

From this we can safely judge that in this small region of the greatest midwife activity in the whole of Boston (18 of the 35 known midwives lived within a radius of a quarter of a mile of this milk station), less than 50 per cent of the cases are delivered by midwives.

FALL RIVER

In Fall River from a member of the Board of Health we learn that there are twenty-three midwives in that city, most of them in active practice and reporting about one-third of all the births. A daily list of reported births is forwarded to the Board of Health Nurse, and the District Nursing Association so that all births among the poorer classes are quite promptly investigated by a nurse. All midwives are listed by the Board of Health as soon as they appear. These women are carefully followed up as to the use of the ophthalmia prophylactic and instructed in the use of this by the Board of Health Nurse. Until the midwife shows that she is competent to use it she is not equipped with an outfit. There is at present no substitute agency which provides obstetrical service in Fall River, and little prospect of one in the immediate future, because of the hostility from a part of the medical profession. The report from the Civic Department of the Women's Club of Fall River (page 231) shows the quality of obstetrical attendance the physicians and midwives are furnishing.

RHODE ISLAND

Providence

Dr. Ellen A. Stone of Providence, reports as follows: The midwifery conditions of Rhode Island have not materially changed since they were presented in tabulated form to this committee at the Chicago meeting of the American Association for Study and Prevention of Infant Mortality in 1911.

The midwife is not recognized by the Medical Practice Act of Rhode Island yet certain duties are prescribed for her; among them being the reporting of births and reporting of inflamed eyes.

Certain midwives in Providence deliver only a few cases each year, while others are extremely active. Three midwives each delivered over 150 babies in 1912. The midwives in Providence report births very promptly to the City Registrar on

postals provided them by the Health Department. In 1911 33 midwives reported 1,637 births; in 1912 39 midwives reported 1,694 births.

Since March, 1911, a nurse has been employed by the Superintendent of Health of Providence to visit all infants delivered by midwives and instruct the mother in regard to feeding and caring for her infant. This nurse visits the baby on the third or fourth day after birth and again when it is from eight to fifteen days old. More visits are made if there is need. During 1912 the nurse visited 1,691 babies making in all 3,421 visits.

The nurse also has instructed the midwives in the management of their cases and has insisted on their being more cleanly, so that there is considerable improvement of condition among the midwives in Providence over that reported at the Chicago meeting in 1911.

CONNECTICUT

New Haven

The midwives are very active in New Haven and all classes of these women exist. Several unlicensed women have friends in the medical profession who sign the birth certificates. Other older women who were admitted to practice at the time the registration law was passed are doing very poor work. Some of the women who have been examined and licensed are doing fairly good work and all of this last class seem to be doing better work than the midwives in the other two classes.

REPORT OF SUB-COMMITTEE FOR NEW YORK AND NEW JERSEY

GEORGE W. KOSMAK, M. D., New York, Chairman

NEW YORK

By way of preface, the scope of this committee's work may be stated briefly to be as follows: On account of the large extent of territory covered a small centralized committee would not be able to study the question owing to the time required and the expense. It was thought best therefore to appoint one or two members of this committee in each city or town who, being familiar with the local conditions, would be better able to make an intelligent study and a comprehensive report. This, however, was the first stumbling block in the work, for it was only by personal recommendations that the

names could be secured of those who might take an interest in this work. A considerable number of physicians and others were communicated with by letter but the responses were not particularly satisfactory. Those however, who agreed to join, may be complimented on the energy with which they have attacked their task and rendered a report within a short time. In selecting the investigators in each locality, the endeavor was also made to secure persons who would consider the obstetrical phases of the midwife practice as well as the social side. It is unfortunate that in similar investigations made in the past, the work was often done by individuals who were not familiar with this phase of the situation or who did not take an interest in the same, who were more concerned in the feeding, clothing, etc., of the infants, than the possible effect of improper obstetrical care on the mothers.

The comparatively brief space of time since beginning the work has made it impossible for me to extend the same as widely as desired, but if a continuation of the work of this committee is agreed upon, further steps will be taken to secure a more wide-spread representation of the same. This moreover, leads me to suggest that committees of this kind be made permanent and that the presentation of a formal report be not the end of their labors. It is very essential that the agitation for better obstetrical care for women in the poorer walks of life, be made a continuous feature of the work of this society, for an important point in providing for the welfare of infants, is to provide for healthy mothers. It is not only necessary to study the midwife but also the obstetrical practice of the local physicians and maternity institutions. This feature, however, will be a matter for future consideration.

It is next in order to consider the reports of those investigators who have thus far consented to aid in this work, and I take great pleasure in submitting the same in their entirety:

Utica

Dr. T. W. Clarke of Utica, is the Medical Director of the Public Welfare Committee of that city and sent out a circular letter to each practicing midwife requesting information as to her methods of work, etc. In connection with his inquiries, he found that the only law affecting midwives is one in reference to the requirements of letters of recommendation from two physicians and registration at the office of the Board of Health. There is absolutely no restriction or oversight of any kind. Sixteen midwives are registered in Utica, of whom

two have practically retired, three are but recently registered, and eleven are in more or less active practice. Of the latter, six are Italians, three Polish, one Jewess, and one English. The largest number of babies delivered in 1912 by one midwife was 139. Two others delivered 132 and 129 each. The smallest number was 6. Of 2,131 births recorded by the Board of Health in 1912, 775 were attended by midwives. There being no inspection, the quality varies greatly. The one Jewish midwife is reported to be clean, careful, and a good diagnostician, and prompt to call medical aid when required. Most of the Italian women have diplomas from Italian institutions. That the Polish are pretty poor, is shown by the fact that one physician stated that he had treated three bad cases of sepsis within a few weeks, in the practice of one midwife who had the largest number of cases in the city. In reply to questions, the midwives stated that they used antiseptics for both their hands and the mothers, and silver solution in the babies' eyes. Dr. Clarke is inclined to doubt the veracity of these statements and feels that some more rigid method of qualification and regular inspection is greatly needed in Utica.

New York City

Dr. S. Josephine Baker, Director of Child Hygiene of the New York Department of Health, has recently published a very excellent report on the subject of midwives, included in a monograph issued by the Department in August, 1913. She states that 40 per cent of all the births in the city reported in 1912, were attended by midwives, or out of a total number of 135,655, 52,743 were under their care. A very extensive investigation has been made by the authorities of the City of New York on the question of licensing midwives, and stringent laws for their government have been formulated. A special staff of five medical inspectors and nine nurses is assigned to this supervision, the details of which are too extended for presentation in this connection.

Dr. Baker is convinced that the standard in New York City has improved since the organization of the various methods of inspection by her department and it is not my purpose to discuss the question at this point. Attention may be also called to the fact that a school for midwives under the control of Bellevue Hospital, has been established in which a course of instruction, both practical and theoretical is given. It is apparently the only one in existence in this country which maintains a reputable standard.

Syracuse

Dr. P. S. Potter, Syracuse, N. Y., submits the following brief report as regards midwifery conditions in Syracuse:

"A new law goes into effect on January 1st, requiring examination for the licensing of midwives, after which more complete statistics will be available. As yet there are no specific regulations covering the practice of midwives in Syracuse. The city has twelve midwives who file about six hundred out of three thousand births a year. The majority are Poles and Italians. One is a German who has a foreign diploma, and another midwife has a New York City license. The statistical clerk stated that there was an indiscriminate practice of midwifery and there were some of these women who did not file birth certificates. The only complaint against midwives in this particular city was, that medicines had been occasionally administered. Instances were known however, where midwives did, or tried to do a version or remove adherent placenta. It is stated that the number of midwives in Syracuse is increasing because of the lack of restrictions."

The subject has received new interest by the local profession as is evident from recent reports in the daily press of an agitation to limit and control the practice of midwives after an exposure of certain of their cases. It would be a matter for congratulation if this reform is consistently followed up in Syracuse.

Schenectady

Dr. Frank Van Der Bogert of Schenectady, N. Y., under date of October 25, 1913, submits the following facts from the records of the local health department:

Number of births registered during 1912.....	1977
Number of births attended by midwives.....	665
Number of midwives attending (names taken from records of first six months 1912).....	13
Licensed physicians in city, about.....	100
Number of stillbirths attended by midwives.....	11
Number of stillbirths attended by physicians.....	43
Coroner's case	1
Of 83 deaths in 1912 of infants under two weeks old, the births were attended by midwives in.....	12
The births attended by physicians in.....	58
Attendants not found in.....	13
Prematurity was given as the cause of death in.....	42

In one instance he found a record of the death of mother and child due to inability of midwife to deliver aftercoming

head. This was the only instance in which the ability of the midwife was questioned and there were several cases recorded as attended by physicians where the causes of death were given as due to difficult labor or birth injury. Dr. Van Der Bogert states:

"My investigation up to the present time, leads me to believe that either the midwives of this city are doing fairly good work or that they call physicians to their aid when in trouble.

"The Health Department here has no supervision over midwives though they are asked to register their names and addresses.

"There is no doubt as to the capability of our regular licensed physicians taking care of all cases, since we have one hundred physicians in the city, most of whom do confinement work and the average birth rate is 2,000 annually."

The last paragraph contains an admission which it would be wise to consider by those who claim that the midwife must exist in local communities, because there are not enough physicians to do the work.

Rochester

Dr. G. W. Goler, Health Officer of the City of Rochester, N. Y., under date of October 30th, writes as follows:

"Rochester operates under a law passed in 1895, entitled 'An Act Regulating and Restraining the Practice of Midwifery in the City of Rochester.' It has a board of three midwifery examiners, including the health officer, who is a member ex-officio. I have made no stated report upon the midwifery condition in Rochester, but from time to time I have made statements in the annual reports relating to the practice of midwifery."

"We have but seven legally qualified midwives in Rochester, and we have gradually reduced the number of births attended by midwives from over one-third of all the births, to about one-fifth. We are unable to deal with the problem of the midwife who practices illegally. We get these people into the police court only to have the police judge discharge them. We have never been able to punish a midwife for illegally practicing midwifery."

NEW JERSEY

Patterson

Dr. C. J. Kane of Patterson, N. J., bases his report on facts procured from the City and State Boards of Health, from the County Clerk's office and from several of the midwives themselves. The number of midwives registered in Passaic County since 1896, is twenty-four in Patterson alone. The number of births in 1912 in Patterson was 2,519, of which 840 were attended by midwives, about one-third of the total number. Registration is only allowable after examination at the State Capitol. Dr. Kane states that the midwives in Patterson send for medical aid when required and many of the complicated cases are sent to a hospital. It will be observed that the proportion of births of this city is considerably less than in the neighboring city of Newark.

Orange

Dr. Katherine Porter of Orange, N. J., presents the following very complete and satisfactory report:

"The four Oranges, comprising Orange, East Orange, West Orange and South Orange, have a total population of about 90,000 and belong to the semirural type of community. Orange and East Orange are cities, South Orange is a village, and West Orange is a township."

"There is a large Italian and negro population with some Russians, Germans, etc. It is among the former that the four midwives ply their trade. Two of the midwives are Italians, one is German and one is a negress. Their ages vary between 37 and 70 years. Three claim to have diplomas from institutions where they attended lectures from six months to three years. Two of these were trained in Europe, one in New York City. The negress has had no special training, is 70 years old, incompetent and dirty. All have received their licenses from the County Clerk in Newark, but afterwards there is no supervision of any kind over them by the municipality in which they practice. During 1912, the four midwives reported 389 births and about 150 physicians reported 1,158 births, the midwives thus doing one-third of the obstetrical work.

"In Orange where there are many Italians, the physicians reported 492 births, the midwives 307 births.

"In Orange the nationality of the mothers attended by midwives during 1912 is as follows:

Italy, 244; Austria, 3; Roumania, 2; Hungary, 1; United States, 39; Scotland, 1; Greece, 2; Russia, 5; Colored, 13; Ireland, 3; Germany, 2.

"The midwives are supposed to call in a physician if any abnormality occurs and in many cases I think this is done, sometimes possibly too late. The Board of Health is very strict about enforcing the law of reporting sore eyes among babies, and I think the midwives are thoroughly alive to the seriousness of any disobedience of this law.

"We have in the Oranges a splendid work which acts somewhat as a check on the midwives, that of a nurse who is supported by the Committee for Prevention of Infant Mortality, and who acts as a special inspector of the Board of Health under the supervision of the committee and the health officer. Her work consists in visiting the homes as soon as practicable after a birth has taken place, to give instruction to the mother in the care of the child. The home care and the modification of milk is also taught. With a few exceptions, only those cases in which the child was delivered by a midwife were taken, in other words, those having the least favorable environment and most in need of attention. Altogether during 1912, 3,095 instruction visits were made by the nurse.

"The records as they are now kept in the various Boards of Health, do not show whether death of a mother or a child, is the result of carelessness of the midwife or not, as physicians must sign death certificates and send in notices of stillbirths. The part the midwife plays can only be ascertained by further investigation. This was done in Orange with the following results: During 1912, 28 children under 10 days died, six of these were midwife cases, 22 were delivered by physicians. The deaths of five mothers were reported, one was attended by a midwife, cause of death 'retained placenta'—four were attended by physicians. The hospital records also do not help very much in determining whether a midwife was responsible or not for a case of puerperal sepsis, as little attention is given to that particular phase of the question. On the history there may, or may not be any mention of it.

"In summing up the situation in the Oranges, I would say that the condition though bad enough, is not so serious as in the large cities. The communities are small enough to act as self-imposed inspectors, and very little occurs that is not known. The negro midwife is old, dirty and untrained and should not have her license. The other three are comparatively intelligent. The homes of two are very neat and clean, the other, an Italian, is very dirty. The nurse inspector who

visits the homes of the mothers within five days after the birth of the child, acts as a wholesome restraint on the midwife and is responsible for the better conditions that exist."

Newark

Dr. Julius Levy, Director of the Department of Child Hygiene of Newark, N. J., presented a very extensive report of the conditions in his city as these had already been worked out. This report may be summarized as follows:

Of 114 midwives, forty have certificates from various American schools for nurses or midwives, although he believes that many of these certificates do not represent real schooling. Fifty-three midwives have licenses issued by the New Jersey State Board of Medical Examiners. The latter are stated to be very superficial in character. Twenty-one midwives have foreign diplomas. A study of his personal records shows, that one midwife delivered as many as forty cases in one month and had an average for six months of thirty-three. There has recently been established in Newark, a maternity hospital and school for midwives, in which it is intended to give a two years' course of seven months each. The Visiting Nurses Association is attempting to meet the midwifery question by offering to supply a physician to women for the sum of \$5.00 and then have the case followed up by a visiting nurse. Although this has been done in a few cases and proven satisfactory, Dr. Levy does not consider that it will make any great in-road on midwifery practice. He finds moreover, that midwives are accustomed to advertise in the local newspapers and he has the record of a case where a midwife was indicted for malpractice but not convicted and her advertisement continues to run in one of the most popular papers. Dr. Levy conducted last year, a course of lectures for midwives, principally on infant hygiene, the importance of maternal nursing, and the care of the infant in the first week or two. He believes that much can be accomplished along these lines.

An interesting feature in connection with Dr. Levy's report, are extracts from the report of the Public Welfare Commission of Essex County for 1912, on the subject of "Infant Mortality." In children under two years of age which were brought to the Consultation Station, the highest mortality was found among Italians where the mothers were almost all confined by midwives. There were a total of 135 midwives in Newark, practicing in November, 1912, whose proportion of deliveries was 52 per cent. Dr. Levy believes that the mid-

wife exerts an important influence in the early life of infancy and should for this reason be carefully supervised by the authorities.

In addition to the cities mentioned in the preceding portion of this report, I also communicated with physicians in other cities in reference to the study of the midwife situation in their respective communities. From some I was unable to obtain any assistance and in other cases, the time has been too short to obtain a suitable report. By way of comment on the preceding statements, attention may be called to the following facts: The communities referred to may be accepted as typical of what probably obtains throughout the two states under consideration, and shows conclusively the lack of sufficient information on this important subject. We find for example, that in most localities, the midwives practice without supervision, or supervision that is more or less superficial in character. The practice of these women seems to be largely among the foreign population which we may assume to be ignorant in most instances of our national customs. It appears moreover, that particularly in the smaller cities, the practice of the midwife as regards the proportion of births attended, is not as great as in the larger cities. Any extended investigation of the subject must depend largely on the investigation of local measures which may be best adapted to each particular community. A suggestion might be made in this connection that committees of physicians and prominent lay persons in each city or town could take up this question as a unit; all this being done under the guidance of a central committee sufficiently large to include one member in each city of each state. If these local committees work as units under the suggestion and advice of a central committee, a great deal of time and expense would be saved and greater local interest generated. The notion of home rule should apply primarily in investigations of this kind and every community should be its own mentor. The experiences of each however should be published and circulated so as to be of advantage to their neighbors.

In conclusion the writer ventures the hope that the work of the present committee be continued, that further efforts be made to obtain information about the midwife from centers not thus far heard from, so that the continued progress in this important work may be reported at the next annual meeting of our Association.

**REPORT OF SUB-COMMITTEE FOR THE SOUTHEASTERN STATES
AND THE DISTRICT OF COLUMBIA**

JOHN L. NORRIS, M. D., Chairman, Washington

Anyone who has made a study of mortality statistics by age periods is aware that the highest rate is for the first year, and that the rate for this year exceeds, as a rule, that of any later five-year period. Of those dying during the first year, approximately 30 per cent, or almost one-third, succumb during the first week. In cases where midwives are employed the time for which they are expected to be in attendance is during the confinement and for a week or ten days succeeding. It should not be inferred that the midwife is responsible for the high mortality of the first week, but it is true that her services cover that period during which the infant's life is in greatest jeopardy and at the time when the greatest care should be exercised.

Under the most competent care, the mortality during this period would be high, since prenatal conditions are largely responsible. These prenatal causes of deaths of infants can, to a great extent, be avoided by proper care of women during pregnancy. When physicians are engaged they do advise the necessary care and treatment of the expectant mother, but this is more than can be reasonably expected of the average midwife.

In the southeastern section of our country midwives belong usually to the colored race, although one member of our committee reports that in one locality old men, incapable of doing other work, follow this calling. As the tasks of the midwife are extremely unpleasant and as the amount of money collected for their services is very small, only those of this race who are either physically or mentally unfitted for other work, follow this business. There is no question but that the legislators realize these conditions and the resultant danger both to the mothers and infants, but they also realize that to forbid the practice of midwifery by these women, would in many instances result in there being no attendant whatever upon cases of confinement. Neither the States of Virginia, West Virginia nor North Carolina require that persons engaged in the practice of midwifery secure a license. The midwife passes no examination to show her fitness to follow this grave calling. She need not be able to either read or write. In fact, there is no restriction whatsoever, except in a few cities of Virginia, where midwives are required to register. In the District of Columbia before engaging in the practice of mid-

wifery, a person must secure a license and before such licenses can be granted the applicant must pass an examination before a board of duly appointed physicians, which will demonstrate that they are qualified to perform the duties of a midwife. This law, which was approved June 3, 1896, allowed those midwives in practice at that time to secure a license without examination. The most of those who were thus exempted from examination were of the "old mammy" type—ignorant, superstitious, dirty. That they had borne children or been in attendance at the time of a birth, they deemed sufficient to qualify them as accouchers. Fortunately, most of them were aged women and their practice confined to but a few years. Of the 130 licensed in 1896, scarcely 20 are alive and in practice at the present time. The midwives who have been licensed since 1896 are of a much higher type. Some of them have been trained in European schools of midwifery and, though not competent to cope with the more difficult labors, their knowledge causes them to realize the dangers and to summon proper assistance. Others are trained nurses and at least one is a graduate of a medical school who failed to secure a license to practice medicine. (It might be mentioned here that while this woman cannot lawfully prescribe a dose of quinine for a chill, she can lawfully undertake the most difficult labors.)

The members of this committee from North Carolina report that about fifty per cent of the midwives in that state are unable to either read or write. The same holds true of Virginia. No data are available from the State of West Virginia, but as no license is required, the percentage of those who can neither read nor write is probably about the same as in the other Southeastern States. The illiterate midwives in the District of Columbia are, of course, confined to those in practice at the time of the passage of the law. As stated above, about 20 are still in practice. One would suppose that where midwives are employed, it would be by those persons whose finances were such that they were unable to secure the services of a physician. This is, as a rule, true, but in North Carolina, Virginia, and in the District of Columbia, midwives are employed, to some extent, by persons financially able to pay a physician. In some instances a feeling of modesty may be responsible for the employment of women. But now that women are so largely entering the field of medicine, the time will soon come when in all the States the services of competent practitioners who are women will be obtainable.

There can be no doubt that the public is being gradually educated to the dangers of employing unskilled attendants in cases of confinement. The latest data which can be secured for the District of Columbia show that midwives are in attendance at about 13 per cent of the births, while in 1896, 48 per cent of births were attended by midwives.

None of the States represented by this committee employ physicians or trained nurses whose duty it is to visit such cases as are attended by midwives to see that the mother and child receive proper treatment. This is also true of the District of Columbia. Though, fortunately for the District of Columbia, a philanthropic society known as Instructive Visiting Nurses' Society, has, voluntarily and without remuneration from the government, been for years employing nurses to visit all cases of confinement where midwives are in attendance. Their object is to see that the mother is properly instructed in the care of the child and that both mother and child receive proper attention. The Health Department immediately upon the receipt of the return of birth by midwives notifies them. Work of similar character is conducted in the larger cities of Virginia and I have no doubt the same is true in other Southeastern States.

In the States of Virginia, West Virginia and in the District of Columbia midwives are required to make returns to either municipal or State authorities of all births attended by them. While many of the cities of North Carolina have local ordinances requiring the reporting of births by midwives these reports are not demanded in all parts of the State.

In none of the States represented by this committee nor in the District of Columbia is there a law requiring prophylactic treatment of the eyes of those infants attended by midwives. In Charlottesville, Va., the local health officer has instructed the midwives in the care of the eyes of infants and is following the cases attended by them with a view to preventing infant blindness. In the District of Columbia, though the law does not require that the midwife administer prophylactic treatment, it does require that midwives report to the health office within six hours of the time it is noticed, any inflammation of the eyes of a new-born infant attended by discharge of pus. All midwives practicing in the District of Columbia are supplied free of charge with sophol. This medicine can be administered with safety and has proved to be as efficacious in preventing gonorrheal ophthalmia as the nitrate of silver, the use of which ought not to be intrusted to in-

competent hands. Undoubtedly one of the greatest dangers attendant upon the practice of obstetrics by midwives is gonorrheal ophthalmia.

Those who are acquainted with the practices of the ignorant midwives know that their usual treatment for inflamed eyes is to squeeze a little breast milk into them. Some few apply a little boracic acid. Some place the child in a dark room and do nothing. They usually attribute the inflammation of the eyes to cold or to exposure to light. Where the employment of a midwife is necessitated by poverty it is indeed unfortunate, if through carelessness or ignorance, a child is allowed to become blind. But it is especially deplorable when through a sense of modesty or unnecessary parsimony a person financially able to pay competent attendants employs an ignorant midwife to attend at confinement and later finds that the inflammation of the eyes of the infant, which the midwife told them was but a cold and which later resulted in partial or total blindness, was a disease which could have been easily prevented and which any competent attendant would have recognized and promptly treated had he been employed. Should a child die through ignorance of a midwife there is always the consolation that it might have died under the best of care, and at most death's wounds are healed by time, but a blind child whose affliction is due to lack of proper care at birth is a constant reminder to the parents that they have not lived up to their obligation.

The following questions have been considered by the committee:

1. Are there sufficient physicians to attend all cases of confinement?
2. Are there sufficient hospital accommodations for all obstetrical cases which would be benefited by hospital care?

The members from Virginia agree that in the more densely settled sections of the State there are a sufficient number of physicians and sufficient hospital accommodations to care for all obstetrical cases, but, that in the rural districts there are times when the services of the midwife are the best that can be obtained. The consensus of opinion is that it would be inadvisable at the present time to enact legislation which would prevent the midwife from practicing in the State of Virginia.

In North Carolina the members do not agree as to the necessity of midwives. One member states that there are sufficient physicians and hospitals to afford proper care for all

cases of confinement and that the midwife evil should be eradicated. Two other members from the same State are of the opinion that the midwife is still a necessity. It may be that conditions in North Carolina are similar to those in Virginia, namely, that in portions of the State the services of a midwife are not required, whereas in other sections it is a choice between employing a midwife or leaving the cases of confinement to be attended by persons even less fitted for the work.

In West Virginia it is stated that there are a sufficient number of physicians to care for all cases of confinement and that the midwife is not a necessity.

There are sufficient physicians in the District of Columbia to attend to all cases of confinement. There are in the hospitals of Washington 387 beds available for obstetrical cases, of which 245 are for those unable to pay for treatment. As there are about 7,000 births in the District of Columbia each year, it will be seen that there should not be any difficulty in securing proper attention. However, there are many persons in the District of Columbia unwilling to accept hospital treatment and unable to employ a physician who demand the services of midwives.

There can be no question but that the midwife conditions in the southeastern section of our country, as in other parts of the United States, are far from satisfactory. A prime object of this association should be to so educate the people that they will fully realize the dangers attendant upon childbirth. Then, and not till then, will the midwife problem be settled and the great mortality of infants be reduced.

SESSION ON CONTINUATION SCHOOLS OF HOME MAKING

PUBLIC SCHOOL EDUCATION FOR PREVENTION OF INFANT MORTALITY

(THIRD CONFERENCE)

Saturday, November 15, 1913, 8 P. M.

CHAIRMAN

DR. HELEN C. PUTNAM, Chairman of Committees on School Hygiene
in American Academy of Medicine and National Education Association,
Member of National Council of Education, Providence

SECRETARY

PROF. ABBY L. MARLATT, Department of Home Economics
University of Wisconsin, Madison

Topic: Methods and vocational objectives in teaching care of
infants under one year of age to girls (young women) of sixteen
years and over in continuation schools (or classes) of home making

CHAIRMAN'S INTRODUCTION:

The interests of the American Association for Study and
Prevention of Infant Mortality touch public schools at three
prominent points:

1. The first point of contact is the personal health of future
fathers and mothers as affected by school environment and by
educational processes.

2. The second point of contact is the health standards and
health habits developed in these future home makers by public
schools.

The former, personal health, has been dealt with in the schools to a large extent by officials only (architect, committees, principal, teacher, janitor and supervisors, medical inspectors and school nurses occasionally), the pupil being a passive, unintelligent, helpless subject. The latter, pupils' standards and habits in health matters, it has been attempted to develop by printed and spoken statements more or less incorrect, unimportant, or inconsistent with school practices—especially such theoretical teachings as concern good air, cleanliness and exercise. Health habits educate more than health maxims.

The Association should be very alive to the present effort to have pupils cooperate in standardizing sanitary details. Such cooperation is the only effective solution of a large part of the difficulties I have mentioned in growing children up to healthy parenthood with correct health standards. It is quite fundamental to general popular appreciation of high temperature and humidity as a cause of infant mortality, set forth in another section yesterday. The custom of pupil health officers is spreading rapidly.

The Traveling Exhibit that is shown here accompanied by the following summary of the report by my committee in the department of science instruction of the National Education Association is being used by normal and high schools and teachers' organizations to stimulate work along the lines suggested. The opening sentiment of the exhibit, as you see, connects with our work: "Better parents of better children should be the aim of public schools."

To standardize janitor service, or school housekeeping, the first step is to get the facts. Every building, as every room in it, has its own conditions to be learned and controlled.

This can be done with least expense and greatest effectiveness by enlisting pupils' co-operation. Expense is negligible. Effectiveness is along three lines: 1. Practically constant supervision which good housekeepers find indispensable; 2, permanent records of sanitary details in place of guesses and opinions; 3, interest of future voters and home makers in such details by practice in regulating them.

Health Officers.—Appoint a group of health officers in each classroom, for periods so limited that each child has service once a year. Credit their work to "physiology and hygiene," or "nature study," "domestic science," physics, chemistry, biology.

Temperature.—Health officers shall read thermometers hourly, record readings in a substantial book, chart them (e. g. nurses' clinical charts) on a blackboard reserved for it, where

pupils, principal, janitor and visitors can see perhaps a week's record at a glance. When conditions permit they shall readjust heat sources, ventilators or windows to secure proper temperature which, when artificial heat is used, should never exceed 68 degrees Fahrenheit. Pupils over eight years of age can do this; sometimes younger.

Dustiness.— In high schools health officers can measure or estimate it by cultures, or by the "sugar method" recommended by the Committee on Standard Methods for the Examination of Air. The standard is 2,000 particles (visible under a two-thirds inch objective) to a cubic inch of air.

In elementary grades they can wipe surfaces with a clean cloth. If dusting was properly done, nothing is wiped off. Floor, woodwork and furnishings should be as immaculate as in the best kept home or hospital. This test should come at the beginning of the session.

Health officers should be responsible for the moist erasing of chalk, but pupils should not be required to dust rooms. Officers should record sweeping of room or corridor while pupils or teachers are obliged to use the rooms. (Severe penalties for this violation of sanitary rights should be enforced by school boards.)

Elementary pupils over eight years of age can do this, including record keeping.

Relative Humidity.— Officers over eleven years of age can be taught to use safely the whirling wet-dry bulb thermometer recommended by the U. S. Weather Bureau. The danger of breaking is lessened by tying to the back a stick projecting a few inches beyond the bulbs. One instrument is enough for an ordinary building. Relative humidity should be recorded and charted about a half hour after the session opens. It can well be done later also. Where possible officers shall readjust artificial sources of humidity (evaporating pans, steam radiators, etc.), or windows, to maintain relative humidity at 50 per cent.

Air Currents.— When ventilating flues have no current indicators of their own, officers should measure currents with an anemometer (one is enough for the usual building), or estimate them with candle or joss stick. Pupils over eleven can use them, perhaps younger. The effectiveness of air currents is best learned by comparing the smell of schoolroom air with that out of doors—the standard of freshness. Air currents and freshness should be recorded at least once at the middle of each session. Officers should make such readjustments of windows or ventilators as indicated.

Cleanliness.— Cleanliness of washbowls, waterclosets, and of any other part of building or yard should be recorded once each session. Dirt on windows sometimes diminishes illumination one-quarter to one-third, measured by a photometer. The instrument is costly, and until a less expensive method is devised the opinion of health officers can be given. Dirty

windows are important in rooms badly ventilated or specially exposed to smoke and dust. Such windows sometimes need washing once in two weeks. Pupils over eleven, possibly younger, can do this reporting.

General Suggestions.— Health officers from older grades can be appointed for rooms where pupils are too young for any special detail.

When a fault is found beyond pupils' function to remedy, it should be reported immediately to the proper authority, probably the principal. It is wise never to "interfere with the janitor." This report and the results following should be stated in "Health Officers' Permanent Records."

For other than classrooms and for corridors groups can be specially appointed, their duties being suitably modified.

Some, if not all of these exercises in practical sanitation can be undertaken quietly at any time by any teacher in charge of any room. One or the other is already proved practicable in individual schools within the last ten years. The accumulated data will be invaluable. It is the practical first step in reducing "school diseases," including tuberculosis, which increases all through school years (except in open air schools), and among teachers has a mortality rate higher than among the general public.

These facts will help demonstrate that school housekeepers, like others, must be trained in sanitary methods. Janitors' salaries and their supervisors' often equal and sometimes exceed salaries of teachers, principals and other trained workers whose responsibilities are no more serious, and who are carefully prepared and tested before appointment.

3. The third point where the interests of the Association directly touch public schools is in the instruction given and that should be given to fit boys and girls technically for the vocation of home making with special reference to responsibilities for infant life.

Our two preceding conferences on continuation schools of homemaking discussed needs and conditions for free school instruction continued through adolescence and early maturity for this purpose, to meet the needs of approximately 20,000,000 young men and women with but a fraction of our elementary school instruction, approaching marriage and parenthood with only such additional knowledge as has been picked up from irregular sources. During these two years, in accordance with a resolution of the first conference, we have petitioned each state board of education to secure the appointment of a commission to study conditions and needs in its state, and to report effective plans for meeting them through such continuation schools and classes. We have also sent reports and re-

prints to several thousand superintendents and other educators, and have urged the matter in several educational journals with largest circulation and influence.

It is reasonable to believe that this effort has had some effect in determining the fact that whereas, four years ago almost exclusive emphasis was laid on commercial aspects of vocational (continuation) schools, at present the states, cities and organizations engaged on the problem are more and more including health and its related interests in planning courses for either sex; hygiene and sanitation concerned with the vocation, and their effects on the family as well as on the workers. We may also congratulate ourselves on the increased attention given to infancy in courses in home economics in our great universities, colleges and certain special schools. The universities of Wisconsin, Kansas, Missouri and others are developing model methods not only in their special departments, but also in extension courses attended by many thousand married women annually, and even in correspondence courses. Institutions such as these not only mold the young women and men of their states but they supply public schools and other schools with teachers having this higher viewpoint of life and the training to impart it to others.

Important reasons have led to the topic of this session: **Methods and vocational objectives of teaching care of infants under one year of age to girls (women) sixteen years of age and over in continuation schools (or classes) of homemaking.** One is a psychologic reason. The usual individual in years of possible parenthood, early years especially, does not willingly make the possibility a definite object of public attention, for obvious reasons that are good. So far as the education itself goes, it can be acquired in its several phases while training for mothers' helpers, agents of health boards, housekeepers, homemakers, janitorial service, or in preparatory courses for regular training schools for nurses. Even the medical profession is finding that it is rooted in the public schools, and certain improvements desired for all the people would be to its own advantage; for example, elementary understanding of certain fundamental laws in biology and in sanitation, such as primary school children find fascinating when they are so fortunate as to have a competent teacher, would make better physicians as well as better parents. These continuation schools can develop still more of this desirable common knowledge. High schools and extension courses of high schools may answer the purpose.

Another is an economic reason. By combining training for these several vocations in one school, the same special officials, teachers, apparatus, buildings, can be more fully utilized, certain elementary instruction being needed by all. Divergence later in the course with special vocational diplomas is entirely practicable.

The comments of Professor Marlatt, in the pages following on some of these points, and on the avoidance of the abnormality of introducing infants and their care in elementary schools, deserves attentive reading. Certainly it would seem that the government through its schools should aim at the normal. There is never lack of leaders in social departures from biologic law under plea of expediency. It is essential that the Association merit public confidence by squaring our teachings with this law so far as we understand it. The nation undermines success that through its schools condones for industrial exploitation the separation of mothers and babies, and helps to give the immature the responsibilities of mothers. It hinders efforts to develop popular appreciation of the greatness of parenthood by belittling the name of mother (or father) to the status of a child. To "help mother" is the wholesome mental attitude in all the little services children may properly be called on to render.

SPECIAL COMMITTEE REPORT (Read by the Secretary)

**Prepared by MISS MARLATT, MISS EMMA S. JACOBS,
MISS ALMA BINZEL and MRS. VANDERVORT**

CONTINUATION SCHOOLS OF HOME MAKING

**One Phase of the Curriculum—Methods of Teaching Care of Infants
Under One Year of Age**

A. Vocational Objectives

1. Mothers' helpers.
2. Board of health agents
 - a. Visiting nurses
 - b. Sanitary inspectors
 - c. Visiting housekeepers
3. Preparation for parenthood

B. Essential details in curriculum

1. Courses of study (suggested in outline)
 - a. For mothers' helpers
 - b. For agents of board of health
 - c. For future and present parents

C. Methods used

1. Brief reports from some European experiments
2. Brief reports from American experiments
 - a. Day nurseries as laboratory
 - b. Helper to visiting nurse
 - c. Use of manikins in regular laboratory classes supplemented by visits to children's hospitals, etc.

B. ESSENTIAL DETAILS IN CURRICULUM

The problem under discussion, to train girls between the ages of 16 and 30 so that they may intelligently care for infants under one year of age, is further limited by the fact that the instruction to be given in continuation schools, must in practice be given in either day continuation schools or night continuation schools. If the pupil has remunerative employment, then the number of hours that may be allotted to such definite subjects per week is limited either by state law or by

city regulation. As the majority of the states have a compulsory school age limit of from 14 to 16 years, this means that the average girl of 16 years will have had the opportunity to complete, and if she has the ability, will have completed the grammar school requirements. While it might not be expedient, or even desirable, to insist upon these requirements in all cases for entrance in these continuation schools, still the work below the grammar grades should not be forced into the vocational schools except in cases where it may be fundamental to the training of the foreign born who do not understand the use of our language. With the vocational objective in view as indicated in our program, the following subjects are recommended according to the future work to be followed.

I. Mothers' Helpers

Physiology of growth

2. Hygiene—general and personal
3. Child study
4. Care of infants:
 - a. Physiology of growth
 - b. Hygiene of infancy
 - c. Bathing the infant
 - d. Clothing the infant
 - e. Food for the infant
5. Sewing (hand and machine)
 - a. Infants' wardrobes
 - b. Cost of clothing
6. Laundry work
 - a. Fine woolens
 - b. Lingerie
7. Principles of cookery and art of cookery
8. Housewifery

While this is a specialized course of study, it will give the professional training as well as the fundamentals which are so essential to the training of the girl for the work nature intended her to do.

II. Agent of the Board of Health

The courses of study necessary for those who are to act as agents of boards of health

a. Visiting Nurses

The visiting nurse must first of all be a graduate nurse, preferably from a three years' hospital training course. Continuation school work may be given her as follows:

1. English
2. Psychology
3. General sociology
4. Poverty and relief
5. Cooking and nutrition
6. Dietetics
7. House sanitation
8. Household management, including housewifery

b. Sanitary Inspectors

Sanitary inspectors should, if possible, be women of collegiate education or its equivalent, who have majored in Bacteriology, Foods, and Housing Problems, and minored in general Economics, and Poverty and Relief. Such a worker should preferably be trained in schools of civics or philanthropy. It is doubtful if the continuation school, without it is equivalent to such training, would answer the purpose.

c. Visiting Housekeeper

The visiting housekeeper should preferably be a woman of wide education, maturity, and experience, who should have a systematic training in the vocational schools in the following subjects:

1. Cookery
2. Food values
3. Textile studies
4. Housewifery
5. First aids
6. Care of the sick, or, home nursing
7. Household management
8. Applied psychology, as psychology of suggestion
9. Poverty and relief

The visiting housekeeper has one of the most difficult problems, and therefore requires the broadest human interest, and the maximum amount of tact in reaching the people to whom she is sent.

III. Preparation for Motherhood

The third class who should be provided for by these continuation schools in homemaking, are the future parents and the present parents. The following course is suggested as being one that would meet the present and future needs:

1. Physiology and hygiene
2. Simple biology, possibly under the name of advanced nature study, studying the lower life forms up to man
3. Eugenics in its broad aspect
4. Bacteriology as applied to house and food supply
5. Food work under the following topics:
 - a. Cooking
 - b. Marketing
 - c. Dietetics
6. Textiles
 - a. Manufacture
 - b. Tests for adulteration
 - c. Lessons in buying
7. Sewing
 - a. Hand sewing
 - b. Mending
 - c. Machine sewing
 - d. Garment making, including children's clothing and some dressmaking
8. Housewifery
9. House management
10. Psychology
11. Child study
12. Care of the infant:
 - a. Physiology of growth
 - b. Hygiene of infancy
 - c. Bathing of the infant
 - d. Clothing the infant
 - e. Food for the infant
13. Care of the sick:
 - a. First aids
 - b. Home nursing

C. METHODS. Discussed by Prof. Marlatt

From reports and from replies to personal letters to leading educators in Europe, it would seem that most of the countries are in the same condition as the United States in their realization of the need for vocational training in schools of home-

making for girls of sixteen years and older. While there have been certain important centers like the Pestalozzi- Fröbelhaus, in Berlin, established in 1873; a school in Brussels; The School for Mothers, at Ghent; the Sesame House in St. John's Wood, London; the Ecole d'hygiene d'education familiale et sociale d'enseignement menager, in Paris, who have quite a number of large training schools in connection with the children's homes, orphanages, and kindergartens, yet they have not reached the large mass of the people, which is the aim of the continuation schools of homemaking as here outlined.

Fräulein Helene Menzel says, in regard to the present work of the continuation schools for girls in Germany: "It is to be regretted that in our newly organized continuation school for girls, the education for housekeeper and mother is only supplementary to the commercial education which is paramount. My personal view would be to give our girls, above all, the education to which nature has destined them, and there should be a well organized correlation between hospital, infant asylum, crèches, cooking centers, etc., and there should be enough schools so that every girl would have a chance to be well equipped for her life work. But today this is an aim 'Devoutly to be wished.'"

Since 1907 Prussia has attempted to deal with the continuation school problem for girls, and has established state schools for the training of vocational teachers with the result that other parts of Germany have followed the Prussian plan. While in 1900 the continuation schools were made compulsory for female commercial clerks and apprentices, it was not till 1911 that the continuation schools became compulsory for all their female employees. As these were for the perfecting of the girl in the line of work in which she was employed, it left out the problem for the training for her future usefulness. At Easter, 1913, the obligatory continuation school for girls was founded in Berlin. In this the teaching of Domestic Economy must be given six hours per week to all office clerks, shop assistants, dressmakers, milliners, and seamstresses, while in the case of untrained workwomen, the teaching of domestic economy occupies half of their school time. It was to this limited amount of time given to the home problems that Fräulein Menzel refers in the letter previously quoted.

This means that Germany has made the decided stand for compulsory education which will in a measure train the girl for motherhood.

From data sent me from the American Embassy at Vienna, the extension work offered by the University of Vienna 1912-13 is given, and proposed work for 1913-14 is indicated.

"Lectures for Brides" is the name of the latest course started by the Extension Department of the University of Vienna. It is known as the Urania, and is now advertised all over the city. Although mainly intended for those who are about to be, or have just been married, all girls over seventeen years will be admitted. The course lasts for eight months, there being lectures on two evenings a week. A small fee is charged for the course, but the poor can obtain tickets free. The program for 1912-13 was as follows:

BRAUTKURZE

- I. Food for the person in health. Dr. Karl Schwartz; October 11, 15, 18, 22
- II. 1. Woman in the kitchen. Dr. Victor Grafe; November 5, 8, 12
2. Woman in the kitchen. Director Johann Michael Heitz
3. Summer and winter menus. Mrs. Marianne Stern; November 15
4. Secrets of the washing and cleaning processes. Dr. Richard Schwartz; November 19
- III. Food for the sick. Dr. Hugo Salomon; November 22, 26, 29; December 3
- IV. Care of the Health in the Family. Dr. Roland Grassberger; December 6, 10, 13, 17
- V. Cosmetics. Dr. Leo Ritter von Zumbusch; January 10
- VI. Food and care of infants. Dr. Robert Dehne; January 31; February 7, 11, 14
- VII. 1. The mother as the first teacher of the child. Dr. Alfred Kolisko; February 18
2. Sickesses of children. Dr. Fritz Passini; February 21, 25, 28
3. Song and art in the nursery. Mrs. Erika Spann-Rheinsch Brün; March 4
- VIII. Care of the sick and first aids in the house. Dr. Max Scheimpflug; March 7, 11, 14
- IX. 1. Dangers in Housekeeping. Dr. Fritz Reuter; March 18
2. How can the housekeeper protect herself against being overcharged in marketing? Dr. Richard Schwarz; March 28, April 1 and 4

3. Correct values of food. Dr. Henry Reichel; April 8, 11
4. Foods and confections—their substitutes and adulterations. Dr. Victor Grafe; April 15, 18, 22
- X. 1. Economy in housekeeping. Dr. Henry Nübel; April 25
2. The status of the wife in the household. Mrs. Elsa Beer-Angerer; April 29, May 2
3. The status of the housewife in relation to the servants. Mrs. Olga Misar; May 6
- XI. 1. Women in charity work. Dr. Otto Maresch; May 9
2. The comfortable dwelling house. Mrs. Elsa Brockhausen; May 16, 20, 23
3. The readings, or courses in reading for the wife and housekeeper. Dr. Maria Jesewicz; May 27
4. The social life of the housemother. Dr. Maria Jesewicz; May 30

SUPPLEMENT TO THE BRAUTKURZE

The housewife in the kitchen. Dr. Victor Grafe; November 20
 Gas in housekeeping. Hans Güntner; January 16
 Electricity in housekeeping. Albin Gigl; January 23
 Life before birth. Dr. Blanca Bienfeld; January 30
 Woman and athletics. Dr. Max Eugling; February 6, 13, 20, 27
 Rights of the family. Professor Stephan Brassloff; March 6, 13
 Rights of society. Dr. Edmund Krautman. March 27, April 3
 Rights of the public. Dr. Rudolph Hermann zu Herrnrütt; April 10

PROGRAM FOR OUR BRAUTKURZE—1913-14

[From *Neues Wiener Tagblatt*]

"We have already spoken of the change in the organization of the Women's Course which will make it more profitable for the pupils; the program for the future is more comprehensive. Some series of lectures, which last year were received with lively interest as giving much useful and practical information, will be much extended. In this direction we offer the lectures upon food and the culinary art, instructions upon marketing, upon the furnishing of the home and the arrangement of the works of art in it; upon the care of the body, the hair, teeth, skin, etc. Selected lectures by specialists upon mental and

physical work. Four lectures upon artistic dress and fashion: 'Every Day Dress,' 'Company Dress,' 'Dress for Travel and Sports,' 'Ornaments and Jewels.' The hygiene of clothing and the purchase of goods will receive special attention. Eight lectures will be given upon the social and pedagogical duties of woman in family and public life. The program of the brides' course extends far beyond a housekeeping course and embraces everything in its province, which enhances the individuality of woman.

**"LECTURES IN THE BRIDES' COURSE OF THE URANIA OF VIENNA
FOR THE COMING SEASON**

"The Urania of Vienna has chosen for the various courses of lectures in the Bride's Course, distinguished experts, skilled in their special studies.

For foods in general. Dr. Grafe.

Nourishment for the Invalid and the Person in Robust Health. Dr. Salomon.

"Dr. W. Schlesinger together with Fräulein Frerich and Mrs. Marianne Stern will conduct the scientific and practical lessons on the table, the kitchen, the culinary art, giving particular attention to the dietary kitchen. For the development of economical and technological knowledge in the purchasing of foods and necessary articles, the lectures of Dr. Reichel, Professor Grafe, and Dr. Richard Schwarz have been secured.

"Dr. Reuter and Dr. Hübel in connection with Mrs. Olga Misar will give instruction upon technical and economical subjects pertaining to housekeeping.

"Dr. Strnad, of architecture, will lecture upon art in the building and furnishing of the home, and supplementary to this Dr. Jesenko will give talks upon the culture and arrangement of flowers and the care of house plants.

"The care of the body and the proper and safe use of cosmetics will be taught by Dr. Elsie Volk, Dr. von Zumbusch and Dr. Ewald.

"Questions in regard to artistic fashions and dress will be answered by Mrs. Natalie Bruck-Auffenberg.

"An instructive lecture upon ornaments and the goldsmith's craft will be given by Dr. Ernst, custodian of the museum.

"The social and legitimate status of women, as well as the public services demanded of her will be taught by Mrs. Helene Granitsch and Ilse von Arlt.

"Dr. Dehne, Dr. A. Kolisko and Dr. Sperk will have charge of the instructions upon the care of young infants and small children.

"Mrs. Helen Scheu-Riess will discuss some problems in the first stage of education.

"In all classes, there will be introduced hygienic lectures in close relation to the subjects under consideration. These lectures will be given by Dr. Grassberger, Dr. Reichel and Dr. Eugling."

In both Switzerland and France the girl between the ages of ten and fourteen is taught in the public schools by lectures and demonstrations how to care for infants, but so far I can get no data as to the training in vocational schools beyond the years of sixteen, so that the pupil may be classed as a professional mother's helper.

In Brussels, I am informed, more systematic work has been done, as there the girls are taught the care of infants, first through use of manikins, and later by going each week to children's hospitals and foundlings' homes, and practicing on the living infants.

In England, Ella Pycroft, reporting from Virginia Water, Surrey, England, states that while the age limit in England is fourteen years, the girls over twelve to thirteen years are allowed to leave the school after having reached the desired standard of education. It is customary to leave the two courses of laundry and cookery work till the last years of the girl's school life, and following this they are sent to the housewifery center where they are given lessons in sick nursing, care of the infants, young children and first aids.

The children used in the practice work in the Wales schools at Glamorganshire, have been practically the brothers, sisters, cousins, or friends of the pupils. The outline of their work is as follows:

Care of children, five weeks

Making cheap toys, preparing a nursery, characteristics of children

Lesson on bathing an infant

Preparation of infant food, making of clothes

Jennie L. Calder, of Liverpool, in speaking of the evening technical schools, says that the difficulty is that so comparatively few take advantage of them. That what is needed is "day schools of domestic science only, for a course of at least six months to be made compulsory for every girl before her

education is finished, where undivided attention can be given to the business of creating (the sorely needed) 'Makers of the Home.'

"To take the example of one such school that is fully equipped for teaching all that is connected with home management, and that has also overcome the difficulty of providing a real basis upon which housewifery can be efficiently taught. This is a day school like any other, open morning and afternoon, every day but Sunday. A six-months' term is prescribed, i. e., twenty-one working weeks.

"The subjects taught are cookery, laundry work, household sewing, home dressmaking, domestic millinery, upholstery, sanitation with hygiene, housewifery and the care and feeding of infants—a long list, truly, but they work in with each other, and some can only be taught by demonstration lectures. No subject is taken for more than a week at a time, i. e., a girl will have a week of cookery, then a week of dressmaking, then a week of laundry work, and so on, each in turn, the cycle being repeated over and over again."

These are brief reports from some European schools.

In America, the teaching of the care of infants under one year of age has been along the line of training girls of from ten to twelve years of age to be "little mothers," a training which is considered by many to be physiologically and possibly morally wrong, in that the child is too immature in physique and in judgment to have this burden put upon her. It is a form of teaching that commends itself because it can be given during the years of enforced attendance at the public schools, but psychologically it is given to the girl when she does not appreciate the need of it and hence it fails of its highest good.

A few private schools have offered courses which lead to the expert knowledge in the care of the child. One of these is modeled on the work done at Sesame House in London. This course of study includes the following topics:

The family—its psychology, sociology, ethics
Biology—eugenics
Physical care of infants and young children
Child hygiene and physical development
Dietetics—children's cooking, laundry sewing
Marketing—housewifery; accounts; management
Home care of sick children; emergencies
Hygiene for mothers

Child psychology and mental hygiene
Principles of child training and of the kindergarten
Children's stories, games, songs, handwork, nature study

Such schools have been in existence too short a time to measure the results of such philanthropic efforts.

Missouri University attempted at one time to teach the care of infants by demonstrational methods but the public was not educated enough to appreciate the need of laboratory practice.

There are three possible methods of securing apprentice work. First, where continuation schools are in close affiliation with the day nurseries or churches connected with factories or shops. In these both by demonstration and later by practice, the washing, dressing, and proper feeding of the baby may be learned.

The second method, which is to allow a pupil in the later part of her study to accompany the visiting nurse acting as her helper, thus gaining the necessary skill under direction, will have a limited use as not more than one pupil could practice at a time.

As a rule the visiting nurse, or visiting housekeeper, is welcome only after tactful methods have been employed by the physicians and head of associated charities, hence there may be serious objections to this second method, as nothing which may jeopardize the successful work of the visiting nurse is admissible.

The third method, which consists of regular laboratory practice work on suitable manikins, seems most nearly feasible. This method is now in use in at least one university where students go thru all the steps from changing the dressing on the cord to the complete dressing of the infant. This work is supplemented by visits to the hospital where infants only a day or two old are washed with oil and then dressed before the students in the clinical operating room. If the hospital is one where foundlings are received it may be possible for the students to help, but the child of the "private patient" may not be even used in demonstration classes.

In continuation day schools the training to be semi-professional helpers for mothers, visiting nurses, etc., may be gained best by practice on manikins and later by work in day nurseries under careful supervision.

The use of a young baby in the school room is very questionable because of danger from infection and also because of more or less nervous strain which comes from unusual environment and noise.

In this discussion I have tried to make clear how we can use continuation schools for training mothers' helpers. Of the seven million working women in this country, out of our total forty-five million females, at least eighty per cent will marry and bring children into the world. Anything that we can do to help them prepare for their life work we should do. If we train girls to help the mothers, they will be in possession of invaluable knowledge for their own homes.

In the discussion by one of the speakers yesterday there was an earnest plea made for the training of young girls as little mothers so that in our large cities the foreign and uneducated mother could be helped through training the young girl to take the burden of the care of the infant, brother and sister. While we recognize the value of such assistance and realize that it may be the line of least resistance in such cities as New York where the foreign speaking population is so great, still I wish to call attention to the fact that this measure is for expediency only and therefore we should not foist upon the general system of vocational educational for the United States a method which is distinctly physiologically and psychologically bad but has for its excuse the easiest way financially to meet a very serious problem which otherwise would have to be handled by a large corps of district nurses speaking the language of the immigrant concerned.

DISCUSSION OF COMMITTEE REPORT

MISS EMMA SUTER JACOBS, *Director of Domestic Science, Public Schools, Washington, D. C.*

Before we can discuss courses of study for any subject we must agree upon certain things, especially upon the fundamental definitions. What is the home? Where is it? What is its use or function? These are the questions which might be asked, and the answers will be as different as the persons giving them, but I believe we will agree on these fundamentals; that home is something more than a place where one's meals are served, or where one sleeps or keeps his clothes, and that the essential characteristic of a home is that it is a place where human beings joined in family groups, may get away from the business world, relax the whole being, and develop or give expression to that which is the individual self in each.

In this home we gain the power and repose of spirit which is necessary to fight life's battles, which is necessary indeed for life itself. It is here that the young of the race receive their first lessons; are given their ideals; and where their habits are formed.

Woman is the natural home-maker—for she is the mother. I believe that at some time all women have some mothering to do, although they may never have children. Into the hands of women is given most of the care of children. I would not be understood as exempting the men, for I believe the man's influence is needed for perfect development of children.

The public school education does little to fit her for home making, and until recently has done almost nothing for the girl. It gave her for her most important part in it such training as it gave the boy, who is naturally the bread winner or provider for the home; yet she is to be the spender of this income; hence the homes which these girls made did not function correctly and both the girls and the boys, now grown to be men and women, became dissatisfied. Neither realized what a home should be. The result is, we find men and women hesitating to join hands and make homes. There are many children in this land who are not provided with the right home environment, hence the self in each does not have opportunity to attain full development. Therefore systematic training must be given along lines which will teach our young people how to make homes, homes where the children will be given full opportunity to reach the highest possible development of self, and where the adult may be refreshed, re-

newed and uplifted day by day. We turn to the schools, for it is there that systematic teaching can be given, and ask that they make provision. Now, what can the schools do? This specialized training cannot be given in the primary grades because the children are too young to profit by it, even if they could understand it. Moreover, they would forget it long before they had opportunity to put the teaching into practice. A start may, however, be made in the grammar grades by having what is termed home schools, where the routine of housework and the elements of cleanness and sanitation may be taught; also cooking schools, for teaching things concerning foods. The home schools should be located in small houses in the neighborhood of the school and furnished simply but beautifully, and in such way as to create an ideal.

In these grades the children are between 13 and 15 years of age. Old enough to profit by the teaching by putting it into practice when helping their mothers at home, yet they are young enough to enjoy the play element which must enter into this work in the home school. The work of the home school was begun on a small scale in this city last year, and we are asking for opportunity and means to do more, but cooking schools have been in operation here for 26 years.

Further, all girls in the high schools should have at least two years' work along lines which will train specifically for homemaking, as this brings the training nearer to the time when it will be needed and the work can be given with a science background.

But this does not reach all, for in every city there are many who leave school before reaching the grade or age where such training can be given, hence for such the continuation school should be established and courses be provided for training along one or more of these lines:

1. Mothers' helpers
2. Agents of the board of health
3. Homemakers

The training of mothers' helpers, I believe, is a good vocational line of work for our girls who must leave school early to earn a living. Many mothers need and desire help in caring for their children, and are gradually learning the necessity for having trained helpers. For such a school I present the following course of study, the pre-requisite to be good health, good habits, good morals, and the common school education (through the eighth grade, if possible).

COURSE OF STUDY FOR MOTHERS' HELPERS

1. Fundamental principles and practice of cooking
2. Preparation of food for infants and young children
3. Principles of feeding children from infancy to five years of age
4. Elementary physiology and hygiene, with emphasis on that of young children
5. Elementary principles of housekeeping and sanitation
6. Plain sewing and garment making for children
7. Story telling, games, and other means of amusement, which would embody some of the principles of the kindergarten and Montessori systems
8. Care of childhood emergencies and sick children

Those who complete such training would be something more than the ordinary nurse girl of today. They would be more valuable to the mother, and have a work to do as noble as that of the trained nurse.

To make such a school successful an infant's school, or a day nursery should be joined with it, so the students could be given opportunity for observation and practice, as in all normal schools for the training of teachers. It might be well to let students spend part of the time in a children's hospital. By the infant school I mean a school where children below the kindergarten age of five or six years would be taken.

Such schools should have large playgrounds, garden plots, sheltered open-air play spaces, sleeping accommodations and a kitchen.

This course should be open to graduates and under-graduates of the high schools, as well as to those who do not enter the high school, and should be for at least one year, preferably for two years.

A registry or employment department is also essential to the success of this work.

COURSE OF STUDY FOR HOMEMAKERS AND PARENTS

1. General principles and practice of cooking
2. General principles of dietetics—planning meals—special feeding
3. General principles of physiology, hygiene and sanitation. (Would include subject of prenatal period.)
4. Simple nursing care of emergencies and communicable diseases
5. General principles of housekeeping

6. Sewing, garment making and repairing
7. Child study, under which would include elementary psychology; story telling and reading; value of play and suggestion; reward and punishment; influence of heredity and environment
8. House planning and furnishing. (In this connection the model house should be the place of meeting so the study of its arrangement and furnishing could be concrete.)
9. Use of carpenters' tools
10. Simple chemistry, physics, biology and eugenics
11. Keeping accounts and division of income

The work should be given by means of experiment, demonstration, lectures, discussions and practice. Several series of lectures, or rather talks should be arranged for both men and women, for the men also need to be trained for this important function.

The course for board of health agents I have not worked out, but I have been considering it and feel that the broadest possible education in science, economics and sociology is needed. This is certainly a collegiate grade of work. This knowledge must be coupled with practical knowledge of how to deal with people, and a personality that will win the confidence and cooperation of those with whom these agents deal.

Such courses as these would certainly give us a trained body of home makers who would be able to create better environment and secure better care for the children who are to come. Stronger children will be born, and these will have better chance to grow to manhood and become constructive forces in the world.

MISS ALMA BINZEL, Superintendent of Primary Grades, Missoula, Montana

I have discussed the matter, and incidentally the outline, with mothers who are college women (one with special interest in biology; the other with partial training for nursing and with experience in journalism). They incline to the opinion that it is women of their class, wives of professional men, who know enough to want just such prepared Mother's Helpers but couldn't make the income stretch sufficiently to pay for a good one. Hence, their wish was and is better preparation of themselves for the task of rearing children, and the sending out and having done the other aspects of housework. They are agreed that those wealthier than themselves tend to be less desirous,

less appreciative of such *prepared* workers and hence need stimulation into thought on the matter. Both of these groups of parents are outnumbered by those who neither know nor could afford if they did know and desire the services of experts (?) with children. For these the day nursery should be a source of help and information.

Basic preparation for parenthood would in a general way meet some of the needs of all three groups; theoretically, it should be compulsory—practically, it will not become so for a long, long time. Theoretically, courses should be planned for and should be taken by fathers; their contribution to the child's welfare is frequently so far below what it might be because of lack of information. Reenforcement instead of counteraction of some of the mother's most intelligent efforts would thus be insured.

A. VOCATIONAL OBJECTIVES

I. Mothers' helpers

Step 1. Educating fathers and mothers to a realization of the importance of engaging prepared workers. Involves a different attitude toward such worker than that accorded the average servant. Involves a different attitude toward financial remuneration than average nurse girl of today receives.

Step 2. Educating young girls and women to realization of importance of preparation for what is immediately a pleasant and interesting vocation and ultimately a preparation for assuming parental duties.

Involves the development of reverence for motherhood; of appreciation of its complexity; of its bearing upon the social good.

2. Board of Health Agents (not analyzed)

3. Preparation for parenthood. Men and women

Step 1. Sane answering of questions concerning origin of life.

Step 2. Science teaching that makes attitude toward preparation of species, reproduction wholesome and reverential; that establishes healthy interests in phenomena of all life.

Step 3. Amusements guided to satisfy natural craving for companionship, that foster impersonal pleasures and guard against overstimulation of all kinds.

Step 4. Rational instruction on origin and development of the family, the marriage ceremony, the opportunities for self-development and the social obligation in marriage relationship. (This would include the basic facts of eugenics, laws or facts of heredity, etc.)

B. CURRICULUM

I. For mothers' helpers

1. Training in personal health, cleanliness, manner, and study habits, and emotional or temperamental tendencies.
2. Instruction in facts of physiology of normal child-life:
 - a. Proportions, trend of growth in size and weight; character of muscle, bone, blood, etc., composition; condition and care of sense organs; etc.
 - b. Amount and frequency of sleep; choice and care of beds, bedding and sleeping place; methods of putting to sleep; regularity; respiratory system.
 - c. Amount, nature and frequency of food-taking; choice and care of foods, their containers and servers; the digestive system; teeth development.
 - d. Amount and character of bathing; of soaps, powders, linens, etc.; the skin and its functions.
 - e. Methods of establishing toilet habits; the function of excretory system.
 - f. Essentials in number, type, cost, texture, care of garments.
 - g. Outings desirable.

The whole growing out of general topic of "Better Babies Movement" or leading to it as an organizing motive.

3. Instruction in facts of psycho-physical nature of the normal child.

- a. Meaning, nature and organization of physical activity of child; of his sense of hungriness; of consciousness; speech development.
 - b. Fundamental methods of acquiring control of self and environment: haphazard manipulation and experimentation; imitation unconscious (absorption of environment) and conscious; instruction; typical efforts at early education.
 - c. Nature, value, and process of habit formation.
 - d. Normal and desirable stimulation through toys, plays, people.
 - e. Individual differences in children determine response and hence call for varying treatment physically and mentally.
4. Instruction in facts of sub-normal physical and psycho-physical nature of children
 - a. Symptoms of mal-nutrition; imperfectly working sense-organs, deranged nervous systems.
 - b. Symptoms of contagious and infectious diseases; prevention of transmission through use of individual articles at feeding, in dressing, etc.; quarantines, etc.
 5. Instruction regarding helpful books

II. Board of Health Agents (not analyzed)

- ### III. For future and present parents: Practically all of the above with elaboration of topics of education to give an outlook for future. (Unless this is treated elsewhere; the paper assigned points definitely to the physical saving of child, perhaps there is a reason for narrowing it to this one point. The wife of the doctor is the one who was in training for nursing; she maintains that both doctors and nurses make too little allowances for individual differences in children that make them respond differently to stimulation physical or psychical.)

C. METHODS

1. Shaping courses in nature study (gardening, animal care, physiology, and hygiene) and domestic economy to present general basis for ideals and habits of wholesome, simple, beautiful living. In the present general movement in public schools from much to less formal and

routine work, from much to less second-hand experience, from little to much first-hand experience—in this already begun movement changes can be naturally introduced.

2. Shaping courses in art and literature to bring out the salient beauty and ethical elements of mother and fatherhood, of family life, of social living.
3. Since such shapings can come only through teachers who are imbued with appreciation of their value and familiar with their content, training schools for teachers must remodel their courses.
4. The extension work of universities, the evening or continuation schools, the settlement house, the parents' classes of the church (the Mormon Church works this most systematically), the women's clubs, etc., can in various places stimulate interest in and provide opportunities for acquiring knowledge. Dissemination of carefully prepared literature would also be effective. (North Yakima, Wash., issued to parents of the city, five pamphlets helpful in "Education with reference to sex.")
5. Boards or committees on the recreational life of the communities should be established.
6. The specific courses for training of Mother's Helpers should in method attempt much concrete work:
 - a. Examination of manikins and real babies for knowledge of physical makeup of children.
 - b. Practice in handling, bathing, dressing large sized dolls, followed by same with real babies.
 - c. Preparation and study of diet with relative value and need of prepared vs. natural food.
 - d. Nursery rooms visited and studied; care of them learned through practice in demonstration room.
 - e. Experimentation with cultures to appreciate general nature of bacterial life in relation to origin and spread of disease.
 - f. Diaries of children under treatment for improvement. Diaries of children making normal progress.
 - g. Diaries of activity of normal children during various months of first year; same of subnormal for comparison.

- h. Apprenticeship or practice — helping under supervision in interested homes, in day nurseries, hospitals, asylums, etc., as opportunities are at hand. (Sort of interne work.)
- i. Relation of employers and employees one of mutual obligation and rights.

Concrete work supplemented by lectures, readings and discussions.

Mrs. Henrietta Calvin, Director of the Department of Home Economics, State Agricultural College of Oregon: I am impressed by the statement concerning the large number of women who are now wage earners, and who will in a few years be the home makers and the mothers. Statistics show that one out of three of all girls of American parentage between the ages of sixteen and twenty-four are wage earners. The next period is from twenty-five to thirty-four years, when the percentage lessens because they have dropped out to go into homes. These wage-earning girls are many of them thought of as factory girls. Some are in factories. Others are in homes. Some are seamstresses, clerks in stores, clerks in offices, stenographers, public school teachers. I sometimes fear that in the continuation school you should admit that very valuable woman, the common school teacher. She is often as grossly ignorant on the subject of home making as any factory worker. The factory worker is one of those who exhibit the survival of the fittest, which means in human affairs the survival of the toughest very often. Her children will thrive under bad conditions when the child of the common school teacher, who is of a higher nervous type, will succumb. These women who have spent from three months to three years in preparation for a temporary occupation, will probably spend no time at all in preparation for their life work; and we should emphatically insist that some time before marriage, and if that is not possible then after marriage, they should prepare for taking the responsibility and care of children. Those of us who have been engaged in welfare movements find that often mothers have been running private experiment stations to the detriment of the first child. I don't know how we can get working people who work during the day to study at night. We have lectures in hospitals at night to nurses, and I find it difficult to make them very teachable after a hard day's work. I wonder if the Sunday school of the future might become a child welfare school. There should be continuation schools of home

making not only for wage earners, but for college graduates and university women. Many women who have gone through a university and are familiar with the languages of other lands have never learned the language of a child's cry. There are women who can tell all the great thoroughfares followed by Caesar's army, but who could not tell the thoroughfare followed by microscopic invaders in their own body, nor how to compete against an army of disease germs. Some care of children should be taught to all women. It is most difficult of all to teach unless we make women realize the value of their own bodies and those of their children. Only then will a large portion of this problem be solved.

Miss Louisa C. Lippitt, B. N., National School of Domestic Arts and Sciences, Washington, D. C.: About two years ago in the National School of Domestic Arts and Sciences I added by request, lectures on the baby to our course in personal hygiene, first aid and the care of the sick in the home. We now have a course of thirty lectures which we call child study. It covers the care of one's health as a future mother; the choice of the future father as it affects the well-being of one's children; the effect on children of the mother's habits and conduct. A little of eugenics is taught, modern social work for protecting babies, vital statistics in these lines, prenatal influences, and influences of environment. They are taught why mothers should nurse their babies; how to feed artificially when that is not possible; the harm of soothing syrups and the avoidance of dosing; also the essentials of contagious diseases, use of disinfectants, when to send for the doctor; how to give simple treatments; care of ears, eyes, throat; the harm of enlarged tonsils and of adenoids. Last year we borrowed a baby and bathed it before the class. As a trained nurse I have seen babies die because mothers did not know how to care for them, and I am convinced every young woman should have this instruction. They have been exceedingly interested, ask a great many questions, and would like to have each lecture longer than the half hour in which it has to be given.

Dr. A. C. True, Director of Experiment Stations, Department of Agriculture: I have been interested for a number of years in the development of a proper system of education for country people. In recent years I have had a little to do with efforts to extend this education out beyond the college and schools to the masses of people who live in the country. We recognize that we must make this system of education cover not merely

the questions of agricultural production, but all the matters that relate to the economic and social conditions of country life.

One of the important elements of such a system of education is the education of the women to be good home makers. Efforts that are being made by the Department of Agriculture, by the agricultural colleges and other agencies for the promotion of agriculture and agricultural education in this country include this subject. We have already built up a large extension system along agricultural lines. That has been done so far in a broad way, principally through the issuing of publications and the holding of farmers' institutes. In recent years we have included quite a number of publications relating to home making. We have also begun to organize special institutes for women. Last year several hundred of such institutes were held in this country, attended by at least 150,000 women. This is only a beginning. It is only the propaganda stage of that part of this movement which relates directly to the home and its interests.

In connection with the farm demonstration work carried on by the Bureau of Plant Industry in cooperation with the agricultural colleges and the General Education Board, canning clubs for girls have been widely organized. These have attained some commercial importance, several million cans of vegetables having been sold last year. But their greatest value has been shown in the arousing of interest in home and school improvement among the women in the communities where the clubs exist.

There is now a movement to complete this extension system by bringing in what are called county agents or advisers throughout the United States to establish local centers for the dissemination of information for the benefit of the people living in the country. Something has been done along this line. I think there are now over 200 counties which have these agents. Leaders now recognize definitely that it is vital that this extension movement reach the masses of the women, as well as the men living in the country. The local organization must be the agent to accomplish this, and the women thus far have been interested. They can be of invaluable help.

There must be a distinct effort to form some kind of local organization to promote this extension system for country people. Theoretically it would be very desirable if the country schools could be made the centers for this work. But practically it is not likely that they will be efficient agents along this line until we have changed the system of organization of these

schools. Those who have studied this problem most thoroughly believe that we must go along the line of consolidation of the schools. There again the women, through their organizations, especially in those states where they are coming into political influence should exert themselves to make a radical reform in the organization of country schools. When we have a consolidated country school, we have approximated the conditions that exist in our cities. We can then hope to have some substantial and effective system of continuation school, and the consolidated schools can be made really helpful agencies for the propagation of the methods of continuation work for the masses of the women of the country along the lines in which this Association is specially interested, as indicated by this section program.

But while we are waiting for that consolidation of schools in large numbers, we should make special effort to secure local organizations in as many communities as possible. Just now it happens that the office with which I am connected in the Department of Agriculture is making an experiment with reference to the utilization in the country communities of whatever talent there may be that can be employed to make organizations for educational purposes outside of the school. The idea is to try whether it is feasible to find in any country district a person sufficiently intelligent to take a simple course of instruction prepared by an expert, gather about him or her a group of fifteen or twenty people and carry out that course of elementary exercises. That work is to be under the general supervision of experts at the agricultural colleges. We have now organized in the state of Pennsylvania two groups of people on that basis. One is a group of men and the other a group of women. We are giving those women a course in the cooking of vegetables in the home.

We will do all we can to carry on in definite ways propaganda along these lines. It is an enormous task, and we are working under conditions very different from those in Europe. We can therefore only learn in a general way from the European examples. But I think we shall ultimately build up, under the leadership of such women as have spoken to us here tonight, an effective system in home training for all the women of our country, in the cities and in the country as well.

Miss Caroline L. Hunt, Expert in Nutrition, Office of Experiment Stations, Washington, D. C.: I find myself agreeing with almost everything that has been said, and yet I wish that there had been a little more emphasis upon the opportunities offered

in general education for meeting this great need which we have been discussing. I refer not only to the formal education of the schools, but also to that informal education in sanitation and hygiene for which our Chairman has done such valuable work. If our schoolhouses could be built, equipped and cared for as Dr. Putnam would like to have them, we might hope that the pupils who go out from our elementary schools would almost instinctively follow practices which we desire to see adopted by mothers in their care of children. If young people are to be trained as they should be, to have a feeling of cleanliness and to apply the principles of sanitation in their daily lives, we must have smaller classes and our schools must be more like well-kept private homes. The better we can make our general schools, the more likely we shall be to send the pupils out to meet the demands that will be made upon them. This has a special significance in the case of girls. The longer we can keep a girl in school and the more opportunities we can give her for general culture, the more likely she will be to recognize her own need of preparation for the responsibilities of motherhood.

This brings us to the second great need in education, that of thorough professional courses in housekeeping and in the care of children. These two matters work together. Keep a girl in school until she knows enough to recognize her need of special training and then give her the chance to get this special training.

The only point which has been brought up, about which I have any doubt, is the compulsory education in the care of babies and children and other home duties. The trouble is that such compulsory training may interfere with other training which the girl may need. Girls and boys are permitted in many places to start on their wage-earning career at the age of fourteen years. This should not be, and we are gradually lengthening the period of compulsory education, and also are offering opportunities in the continuation schools to boys and to girls. I question whether we have a right to compel a girl to take any special course in a continuation school, any more than we have a right to compel a boy to take a special course. If the girl is compelled to study the arts of home making, while the boy is taking courses which will help him to advance in his career as a wage earner, the girl is necessarily handicapped.

My hope lies in the two points which I have emphasized—the extension of the period of compulsory education and the establishment of professional schools where girls will have an oppor-

tunity, if they wish, to study housekeeping and the care of children.

Prof. Marlatt (closing discussion): The points brought out by Dr. True are exceedingly important on the general subject of training women. The work that has been done at our community institute at Wisconsin University has been done largely by physicians who go to the cities where there are no colleges, and give lectures and demonstrations on the care of the sick and of infants. In one Western State they have their hygiene institutes where they teach for health rather than for care of the sick.

Referring to some of the points brought out by Miss Hunt, I think that in our present educational system we are so re-organizing the public school that there will be an intermediate period, called in some places the junior high school. It will include the last grammar grade and the first and second year of high school. In this way some high school work will be put in the lower grades and thus much better and more interesting instruction will be given in the seventh and eighth grades. This is being done extensively in the Western States, and is the coming form of education undoubtedly. In this way we will be able to reach children who usually drop out of the seventh and eighth grades. It gives opportunity for special teachers to work in these junior high schools. They will be able to give an excellent elementary course in biology in which we can conduct boys and girls at this formative period into a knowledge of themselves and their responsibilities.

SUNDAY SESSION

November 16, 1913, 3 P. M.

ADDRESS

INFANT WELFARE AND THE COMMUNITY

MARY SHERWOOD, M. D., Baltimore

It is interesting to live in a great era such as the present, which has witnessed the discovery of the value of the baby to the community. Statisticians have given us figures to show the relation of birth-rate to death-rate, and to prove that the number of babies who survive birth and grow up are an important concern to every community. Humanitarians and conservationists have made their plea that babies whose lives can possibly be saved should not be permitted to die. It is surely fitting that our association should be the vanguard of the great Conservation Congress that is to meet in this city this week, for no problem in conservation is so important as ours. No other form of material wealth is as valuable as an adequate number of healthy babies, strong by heritage, suitably cared for at birth and intelligently reared to maturity.

PREVENTABLE INFANT MORTALITY

Our association showed a little courage in adopting as its title "American Association for Study and Prevention of Infant Mortality." The very name implies that there is such a thing as preventable infant mortality, and any community which faces this fact stands condemned if it is not doing everything in its power to prevent this mortality. "To look an evil fairly in the face is to begin to conquer it." A time will come when such an association as this need no longer exist because all preventable infant mortality shall have been prevented.

MUTUALITY IN LIVING

No community is stronger than its weakest point. We have lived through the era of egotism and have come upon the era of altruism when we answer the question "Am I my brother's keeper?" in the affirmative, and realize our responsibility to our neighbor. A father and mother are naturally interested in their own baby. But when every father and every mother feels that every baby has a share in their sense of responsibility we shall have the highest ideal of community life.

RESPONSIBILITY OF THE COMMUNITY

We are an association for the *study* as well as the *prevention* of infant mortality. Our problem is far-reaching. The causes of infant mortality extend into the social conditions and the political life of a community. Insanitary housing conditions, bad drainage, insufficient ventilation, dirty milk, flies—all are contributing causes to a high infant death rate. Filthy conditions in streets and markets, and the handling and storing of food have both a direct and indirect bearing on our problem. High temperature is conceded to be a causative factor in infant mortality. We go on refrigerating provisions on an immense scale and at enormous expense, yet in only a few hospitals have cooling rooms been provided for sick babies. It has not yet occurred to us that it might be a public duty to provide refrigerating rooms on a large scale where babies could be kept well in the heat of summer.

Archaic methods of production and transportation of milk still persist in many rural communities. We take hold of this problem by the wrong end. We pasteurize impure milk, kill the microbes and use the resulting mixture of milk and dead microbes as food. Some day we shall insist upon the clean production of milk. Every community has the power to change these and other imperfect conditions of living.

SPECIAL TRAINING IN PEDIATRICS

Special knowledge is needed by physicians to enable them to care properly for sick babies. I was never more strongly convinced of this need than in talking recently with a nurse who was handicapped by the fact that the physician attending a sick child under her care had not had special training in pediatrics. The nurse knew more about the case than the doctor, yet she had to follow his directions. We can all unite in the demand that medical students receive training in pediatrics. Sweden made this obligatory thirty years ago and now has the lowest death rate among children of all the countries in the world.

TRAINING FOR PARENTHOOD

We need educational standards for parenthood. Very interesting work is being done by a section of our association on Continuation Schools embodying the idea that girls and boys should be trained for their responsibility as potential parents and home makers. An intelligent people should surely provide education for the most important business in life.

ECONOMIC CONDITIONS AFFECTING INFANT MORTALITY

Various economic considerations affect the infant mortality rate, such as the wages of the father and his ability to care for a family, and the fact that many mothers are compelled to be wage earners and therefore cannot nurse their babies. Very few industrial establishments provide free rest rooms for working mothers where their babies can be brought at stated times to be nursed. We have not fully studied the consequences of permitting little girls to work long hours and to sacrifice their vitality in hard work when these same little girls are the potential mothers of future generations.

BETTER OBSTETRICAL TEACHING AND PRACTICE

No greater problem is facing us for solution than the instruction of the prospective mother and her care in confinement. "Time is slowly making ancient good uncouth" and humanity is beginning to realize that modern scientific knowledge no longer countenances the grade of obstetrical practice which has come down to us from the time of Moses. You will be shocked to hear that in our American rural communities and our large cities from thirty to fifty per cent of confinements are conducted by midwives. We are permitting absolutely ignorant women to undertake a kind of care which requires the highest degree of specialized knowledge of surgery, medicine, obstetrics and sanitation. Many of our medical schools are not prepared to teach obstetrics properly. No more important subject could be had for study in women's clubs and federations than the study of the facts of obstetrical teaching and practice in America.

THE COMMUNITY

Every community should have a knowledge of the facts of infant mortality. Every community should start some form of baby-saving work. No work can be begun with greater assurance of success, for it is work for the future as well as the present. As members of a community working for the welfare of every baby in the community we shall begin to see the realization of that great word: "He that is least among you shall be greatest."

ADDRESS

WM. C. WOODWARD, M. D., Washington, D. C.

A few years ago when this Association was formed, the fact that stood out prominently before the community was the existence of an enormously high infant death rate. In keeping with its object and purposes the Association was christened the American Association for Study and Prevention of Infant Mortality.

This seems to me to be a rather unfortunate name. When we study "infant mortality" we fail often to see the dead baby and the bereaved home. We stand back of that high-sounding term and leave the prevention of infant mortality to those who are charged officially with public duties, rather than go ourselves to the homes of the ignorant and the poor to teach them how to save their babies.

There are very few of us who do not love "babies;" in fact any one who does not love a "baby" would be ashamed to admit it. But when it comes to loving an "infant," that is quite another matter. You may have noticed that in the preceding address the speaker did not once refer to an infant. It was always the baby. It is the babies we want to save.

Unfortunately this conception of infant mortality has obstructed the larger vision of infant life. Death is a very striking phenomenon. It inspires every one with a sense of peril, grief, and bereavement, and makes an impression that we cannot get away from. Yet in its last analysis death is merely one phenomenon in the life process, and in many ways it is not a very important phenomenon to the individual chiefly concerned. So we are not now endeavoring only to prevent infant mortality; that is, of course, an incident in our work. But what we are rather trying to do is to make the baby a well, strong, happy baby; to carry that baby through infancy, and pass him along into childhood with the best possible chances for growing up to be an efficient man or woman.

I think we may possibly criticise the position that has been taken in the campaign for welfare of infants. We have appealed too much to the community and too little to the individual. In all of our work we have represented the baby as a valuable asset of the community, and we have left it to the community to care for that asset. Sometimes, along with the

emphasis we have placed upon the value of the baby to the community, we have emphasized the responsibility of the parents. We have shown how the parents must bear the burden of bringing a sound, healthy child into the world and of caring for that child until adult life. And the emphasis we have laid upon the bare responsibilities of the parents, without any correlating emphasis upon the value of the child to them, has probably been a strong contributing factor toward lowering the birth rate. We preach against race suicide, and some believe that voluntary childlessness is an evil under all conditions. But certainly when we preach day and night, year in and year out, the responsibilities of the parents for their children without at the same time touching on the value of the child to them, we discourage men and women from assuming the burdens of parenthood.

We should preach more the value of the child to the parents; not in dollars and cents, of course, for no one would undertake to measure the value of a child to its parents in that way. We must emphasize more the factor referred to by the preceding speaker, that is, the psychological and spiritual value of parenthood. Is the baby worth nothing in the home? Is it worth nothing to the parents? Is it worth nothing to the brothers and sisters? Certainly no one will admit that. It fills a place in the life of every human being. We find that yearning on the part of men and women for something to love, something that cannot be measured in dollars and cents, something that is often supplied in a vicarious way by the adoption of pets and other things relatively useless, when the love and affection lavished on them might be bestowed on some human being and expanded in a more useful way.

The problem of infant mortality is an individual problem. The state cannot assume it. The city cannot assume it. The church cannot assume it. We have to come right down to the individual, down to the man and the woman, the mother and the father of the little child. We have missed, I think, one of our greatest opportunities for the accomplishment of this end in our failure, passably through our inability, to use our religious organizations. Nowhere, it seems to me, can we make a more direct and a more powerful appeal to the best that there is in the human race, and nowhere can we better inspire the individual, than through the churches. If we can induce the churches in some way to give particular attention to this problem of baby health, this problem of sociology, this problem I might say also of spirituality, we will have gone a long way

toward solving it. If every church in this city and in the land, would during the next year save one or two babies we would have a very material lessening of the death rate, and in the amount of illness. I plead, therefore, for an organized effort on the part of the churches to cooperate with this Association to the end that we may have a happier, healthier babyhood, childhood, manhood and womanhood.

ADDRESS

THE CLAIM OF THE BABY

J. H. MASON KNOX, JR., M. D., Baltimore

Those of you who heard Dr. Holt on Friday evening will remember that he spoke of the great attention paid in Germany and in France to this problem of baby saving. This is largely because of the diminution of the population and the fear of statesmen that the armies will be depleted and that other walks of life requiring men and women will not be sufficiently filled. When we approach the question in a place like this, we have a stronger lead. The plea to the Christian church is a great deal stronger than that. Certainly no lesson of the New Testament is more evident than the value of human life, and no fact in the life of Christ is more certain than His care for infants. No lesson is more specific than His new definition of the word "neighbor," namely, that we are neighbors to those who are in need. The parable of the Good Samaritan fits this effort to affect the reduction of infant mortality precisely. No class of living persons can make such an appeal to your sympathies and to your help, financial, personal, and of every other kind, as does an infant. He is absolutely helpless, absolutely dependent upon his environment for his very existence, to say nothing of his well-being. We cannot be followers of the Master, we cannot even be good citizens or good financiers, to put it on the lowest point of view, unless we give the infant a better chance for life and for health. So I say the infant has a legitimate basis for appeal to you and all of us to know something of how his life can be conserved. We estimate that 200,000 infants die every year in this country out of an infant population of 1,500,000, and that at least one-half of that death rate is unnecessary; that with ordinary care approximately 100,000 human lives could be saved annually.

What has the baby a right to claim from you and from every community? First of all he has the right to *be counted*. That is a very simple thing. Every livestock breeder counts the young of his stock. Yet only lately have we come to think of this thing. Only a little more than half of our country belongs to what we call the registration area and counts deaths. A still smaller proportion registers births. Only when we know how many infants there are born can we know what propor-

tion die from this cause and that. We are the only civilized country in the world whose registration statistics are practically thrown into the waste baskets by the statisticians. Yet the infant has a fundamental right as an American citizen to be counted.

Second. The infant has a right to be *healthfully born*. In raising livestock healthy animals are bred to produce healthy young. Shall not our infants have the same advantage? This implies first, healthy parents. It follows that no one should be allowed to marry who is infected with any of those diseases which can be transmitted to the offspring. The least that healthy men and women thinking of matrimony can do as a duty to the state, is to present proper certificates from suitable sources that they are without transmissible disease. In this way we could gradually stamp out these dreadful scourges and stop this great loss of life which is so well known in every medical clinic, and which we can attribute to the diseases and crimes of parents. The helpless infant, if he could voice his claim, would say, "I claim it as my right to be healthfully born."

Third. The infant has a right to be born of a *rested mother*. More than half of the infant population in this world is brought into existence by overtired mothers, some working up to the last minute before confinement. Statistics show that the average weight of these infants is less, and their vitality less, than if the mothers were properly rested. If mothers have had adequate rest for two or three weeks before their children are born, these infants have an average weight of approximately seven pounds. If the mothers work up to within one week of childbirth, the average weight would be approximately six and a half and six pounds. This waste occurs not only in the rural districts and among the ignorant classes, but in New England and other states in the factory towns where women spend a large part of their time in the factories. I am thankful to say that homes have been started to afford rest to these mothers at the right time before and after labor. It is necessary to supply more adequate means so they can afford to cease from their hard work at this critical period in their lives.

Fourth. The baby has a right to be born *properly*. That's the old story with which you are all familiar—the obstetrical problem. What a crime it is that at this important crisis when two lives are in the balance, people without ability should be allowed to jeopardize these two lives! Obstetrical training is given much less attention than other branches of

the medical profession. Men are graduated from medical schools without even having conducted their first case of labor. Much of this work is conducted by ignorant women. Do you see how slothful we are?

Fifth. The baby has a fundamental right to be *reared healthfully*. This includes, first, his right to be breastfed. How many are deprived of this right! There is no satisfactory substitute for mothers' milk. It is almost as important that the baby should have its mother's milk as it is that he should be connected with the mother before birth. How many physicians advise weaning unnecessarily upon the slightest digestive disturbance, taking it as an indication that the mother's milk does not agree with the child, when in nearly every case with a little patience during a period of uncertainty, and some care on part of the physician and co-operation on part of the mother, the trouble will vanish and the nourishment will agree with the child. We find many working women willing and anxious and able to nurse their babies. Of nearly six hundred delivered at the Johns Hopkins Obstetrical Clinic, over sixty per cent were able to nurse their babies for at least six months. Here you have pure warm milk in just the right quantity. Let us make a plea in this campaign for breast feeding, for the natural nourishment of every baby.

There are reasons why some mothers cannot nurse. If this catastrophe takes place, the least we can do is to provide the very best substitute, and that is pure cow's milk properly modified, given at the right intervals and in the right quantity. There is no other substitute which is moderately satisfactory. It is expensive and requires intelligence on the part of the mother and conscientious cooperation and skill on part of the physician. But these things ought to be at hand when the stake is so high. It ought to be considered a crime for a mother to have to go around the corner and buy poison, which is called milk. A large part of the mortality which takes place in the summer is due to impure milk. Let us bring this knowledge home to the mothers and give them the opportunity to buy something which is really clean food.

The baby to be healthfully reared must be properly clothed, and that means more than most people think. A friend of mine was called a short time ago to attend a child thought to be dying. It seemed not to be breathing, and it was blue and cold. The physician undressed the child, taking off layer after layer of very tightly wrapped clothing. Finally, as the

child's chest was exposed it began to breathe, and soon the natural color returned. That mother was most anxious and loved her baby. She didn't know she was keeping him too warm and too tightly wrapped.

In the last analysis, two things ought to be emphasized. In the first place we cannot get along with foster-mothers only. The real mother is the pivotal point. The mother must be taught. Almost without exception she admits the visiting nurse to her home with gratitude, and cooperates up to the limit of her ability when she is shown in a tactful way. We have an opportunity here which perhaps no other propaganda has, namely, of appealing to the *natural instinct* for the co-operation we want. I believe all these milk stations, many babies' hospitals and dispensaries, important as they are, are chiefly needed to fill in the interval while this maternal ignorance exists and while thousands of babies are being born amid unhealthful surroundings. The time must come if we see our duty and perform it, when every girl growing into maidenhood and motherhood shall realize that it is important and proper to know something of the care of babies. If she is to bear children she shall demand the best obstetrical care; that she and her husband shall be free from disease; that she shall be rested before labor and shall claim the privilege of nursing her own baby; if she cannot then it shall have only the best cow's milk procurable. If she cannot get it herself she should see to it that the state or some philanthropic institution supplies it. Then there will come the time when instead of losing 200,000 babies we will save at least one-half of that number. The difference between the death rate in China and in New Zealand is striking. One country has a death rate of over 300 per 1,000 and the other a death rate of 60. The situation in Baltimore is very similar to that of Washington. We have a peculiar problem in both cities in our colored populations, whose death rate is more than double that of the white children. For our own self-preservation we must take better care of our colored population. They spread disease among the white people. We do not begin to take care of them as they were taken care of in slavery. Then they were considered as children and were cared for properly. For good political reasons they have been made free, but they have been permitted to fight it out themselves and they do not know how. So, I look to Washington and to Baltimore to lead the way in the real emancipation of this race.

SESSION ON VITAL AND SOCIAL STATISTICS

Monday, November 17th, 10 A. M.

COMMITTEE

CHAIRMAN

MISS JULIA C. LATHROP, Washington, D. C.

ACTING CHAIRMAN

DR. GEORGE M. KOBER, Washington, D. C.

SECRETARY

MR. LEWIS MERIAM, Washington, D. C.

DR. S. J. CRUMBINE, Topeka, Kansas

DR. MARIA M. DEAN, Helena, Mont.

DR. W. L. HEIZER, Frankfort, Ky.

MRS. PERCY V. PENNYPACKER, Austin, Texas

MR. SHERMAN C. KINGSLEY, Chicago

PROF. WALTER F. WILLCOX, Ithaca, N. Y.

STATEMENT BY DR. KOBER:

We greatly regret the absence of our Chairman, Miss Julia C. Lathrop, who is prevented from being with us on account of serious illness. It is gratifying, however, to know that she is making a good recovery, and we hope she will be speedily restored to her great and useful work.

The program this morning is on vital and social statistics. Social statistics are of the greatest importance in determining the causes of excessive infant mortality. It is perhaps not sufficient alone to establish the birth of a child in order to secure the rights of future citizenship, but also to know under what conditions the child was born; whether he is a child of the less resourceful people who are compelled to live in one or two rooms of a tenement house, or whether he is one who belongs to the more fortunate class. Washington, in the District of Columbia, in 1900, led all other cities in an excessive infant mortality. Our rate was 274 per thousand population, under one year of age. This was due to the excessive death rate among the colored population, the proportion of deaths being 2 to 1 what it is among the white, due largely to sociological conditions. Our colored people constitute our laboring class to a large extent. They are exposed to hardships and privation of every kind. It is gratifying to report a reduction of more than one-half in the total infant mortality in the last few years, the colored population sharing in the reduction.

I have great pleasure in introducing Dr. W. C. Woodward, the Health Officer.

THE USE OF VITAL STATISTICS FOR THE CONSERVATION OF INFANT LIFE

WILLIAM C. WOODWARD, M. D., LL. M., Health Officer of the
District of Columbia

Along with a lessening of the birth rate in all civilized countries has come, as the very name of this association indicates, a demand for the prevention of infant mortality, to the end that there might be no avoidable diminution in the rate of natural increase in population. Death stands out as a cruel fact in the experience of everyone and it was perhaps natural, therefore, that attention should have centered first on the prevention of death rather than on the prevention of disease. That it did so center was none the less unfortunate, since the demand for the prevention of mortality has served to obscure the real purpose of the movement, the conservation of life not alone in numbers but also in fulness or efficiency. Our aim is not merely to postpone death until after infancy, so that infant mortality may be reduced, but also to develop the happiest and healthiest infant possible, so that he may pass out of infancy into childhood with the best outlook for the future that human knowledge and love can procure for him.

DEFINITIONS

Infant mortality has come by common consent to mean mortality during the first year of extra-uterine life. Any study, however, having in view the conservation of infant life must extend over a considerable period preceding birth, so as to discover how prenatal circumstances have influenced and may influence the subsequent extra-uterine life of the child. And any such study must be carried from infancy on into at least the beginning of childhood, so as to disclose the conditions, good and bad, that appear in childhood as the result of causes operating during infancy, so that we may promote the operation of such conditions as are favorable and retard or eliminate such as are bad.

The term "vital statistics" is popularly understood as covering only such figures as relate directly to births, illness, and deaths. In the professional work of the sanitarian, however, it must be accepted as comprising all statistics relating directly or indirectly to biologic processes of the human race.

Used in this sense, the term includes many data pertaining to community life, or sociologic statistics, and some pertaining to the natural physical environment, or meteorologic and geologic conditions, in so far as they may be correlated with the biology of man.

In this paper, the word "births" is to be understood as including both live births and stillbirths unless otherwise stated, or otherwise indicated by the context.

THE RELATION OF VITAL STATISTICS TO THE STUDY OF INFANT LIFE

Notwithstanding the brevity of the period covered by the term infancy, the life of the infant is no less complex than the life of the adult. In infancy, senility does not concern us, but premature birth does. Typhoid fever is rare, but diarrheas of obscure origin are exceedingly common. Occupational diseases are unknown, but hard labor on the part of the mother during pregnancy may react unfavorably on the offspring. And diet, air, clothing, sleep, and even nerve strain go to determine the health of the infant quite as much as they go to determine the health of the adult. Until infant life has been resolved into the ultimate elements of which it is composed, and these elements thoroughly studied singly and in groups, we can have no proper understanding of it. Preventive measures necessary to avert premature delivery and its consequences will not suffice to prevent death from diarrheas; but if excessive morbidity and mortality are due to diarrhea, prenatal nursing is not the remedy demanded by the situation. The measures that are effective against diarrhea will not diminish fatalities from pneumonia, and if an unduly high death rate is due to the prevalence of the former disease, methods for the prevention of the latter are of no avail. And it is only by the use of vital statistics that we can resolve infant life into its primary elements and determine the relations of each to the others, so as to find out what had best be done for the welfare of the babies in the community. The statistics needed for this purpose are: (1) Statistics of birth; (2) Statistics of illness; (3) Statistics of death; (4) Sociologic data; (5) Data relating to weather conditions.

STATISTICS OF BIRTHS

Until the number of infants in the community during each period and place under consideration has been ascertained, there is no sound basis upon which to measure the prevalence of illness and death. If 1,000 infants are present during

twelve months and 100 deaths occur, the record is good, according to present standards; but if only 500 children are present and the same number of deaths occur, the situation calls for careful investigation.

For the determination of the number and the types of infants present, nothing can take the place of an accurate registration of births. Even an actual enumeration of the infants in the community is not sufficient; for an enumeration ordinarily shows merely the number of infants present at the very time the enumeration is made, while the basis required for the study of infant illness and death is the number of infants exposed to such events during the entire period under consideration, and this is the number born during that entire period and not merely the number present during a part of it. Moreover, any attempt to enumerate at the end of the year by house to house visitation all infants who have been in the community during the preceding twelve months is not only certain to yield inaccurate results, but such results as it does yield come too late to afford the basis for direct measures to safeguard infant lives. Not only does the registration of births afford the only proper method of obtaining accurate information as to the number of infants exposed during any given period to illness and death, but it affords the only means for determining the kinds of infants who are so exposed; for determining, for instance, the sex of the infants, ages of parents, number of children born previously to the same mother, and so on. And what is quite as important, the registration of births is the only way of obtaining prompt information concerning such births as occur; and promptness is a first requisite for preventive work.

To obtain an accurate record of births requires in the first place an enforceable law and in the second place some one to enforce it. Returns of stillbirths, at least such as occur in the latter part of pregnancy, can be made fairly complete by the method commonly used to obtain accurate returns of deaths, namely, by requiring that a burial permit be issued before the body is disposed of. Returns of births other than stillbirths are not so easily obtained, but they can be gotten through the adoption of the following methods:

1. By systematically checking reported deaths of children under any given age, say one year, with the record of births and calling to account those persons, if any, found responsible for failing to report such births as are found unrecorded.
2. By systematically publishing the names of parents of children whose births have been reported, thus affording par-

ents, and their relatives and friends, opportunities of learning through the local newspapers when a report has been made.

3. By sending to all the parents to whom a birth is reported a certificate attesting the registration of the birth, thus teaching such parents, and through them their relatives and friends, to look for such a certificate after every such event.

4. By educating the public through timely articles in the newspapers and in the bulletin of the Health Department, if there be such a bulletin.

5. By having an inspector or inspectors investigate the birth registration of such infants as he may be able to find on the streets and in the parks, or to locate through other methods, and if any births be found unreported, cautioning the offenders, or prosecuting them if the circumstances call for such action.

STATISTICS OF ILLNESS

One of the greatest drawbacks to the scientific study of infant life is the absence of morbidity reports. Such reports are now commonly limited to those relating to communicable diseases, including ophthalmia neonatorum. A few cities have required the reporting of diarrhea. No sanitary authority, however, has today anything like a satisfactory system of morbidity reports, and yet such reports are necessary for any thorough-going study of disease, whether communicable or not. Unless cases are reported, we can not know, except as deaths occur, whether a given disease is or is not present; and the presence or absence of a disease that does not of itself cause death can not be known at all, except by chance. In the absence of case reports it is impossible to learn when and where a disease not ordinarily present first enters the community, and where, when, and how any disease spreads. Yet all these facts must be known before we can efficiently and economically wage war against the malady. If the fatalities from a disease amount say to ten per cent of the cases, and only fatal cases be reported, then the disease producing conditions may have resulted in ten cases, and these ten cases may have run their course and other cases be in progress, before even one death is reported; and before deaths have been reported in sufficient number to give rise to suspicion that the disease is unduly prevalent, an outbreak may be well under way.

Under any circumstances, since the severity of even the same disease varies from time to time, the number of deaths alone does not afford a satisfactory index even to the extent of

prevalence, to say nothing of distribution and mode of spreading. Moreover if a case is not reported until after death, there is added difficulty in getting necessary clinical and sociologic data pertaining to it. It is more difficult to approach the bereaved parents with any inquiry concerning the circumstances preceding the attack, since the inquiry may reveal as the immediate cause some act or omission on the part of the parents, through neglect or ignorance; and, no matter how willing they may be to give the desired information, time and the emotional stress of bereavement may have obliterated from their recollection essential facts, or have established in their memories a faulty perspective, distorting the relative importance of the preceding events. Then, too, facts obtained concerning the fatal cases alone may not be sufficient, and unless the percentage of fatalities is great, probably will not be, to enable an investigator to focus upon any one condition, or upon any group of conditions, that he can hold responsible for the occurrence of the disease. On the other hand, if he be permitted to study the environment of each case as soon as it is discovered, he will probably be able to find some characteristic condition or conditions common to many cases, and he may thus be enabled to determine the cause of the prevalence of the disease. It is, of course, unnecessary to point out that if the conditions responsible for the prevalence of any given malady be not located until after they have given rise to enough fatal cases to lead to their detection, much valuable time will have been lost for the removal of such conditions, or in the issue of a warning against them if they be not removable, and much unnecessary damage may have been done.

The fact that the causes of many diseases, even some of the most common ones, are not known, can not be accepted as proof that the reporting of cases of such diseases could not lead to the discovery of the conditions operating to produce them; for if the cases of such diseases were reported, then due inquiry might be promptly made, and especially with respect to the diseases of infancy, all of which are more or less acute when they first come under treatment, it is not impossible that the causes might be discovered and means devised for their removal. But even though the reporting of cases should not lead to the discovery of the causes of any particular disease and to their removal, yet such reports would enable the proper authorities to provide relief for individual cases, whenever they might be found in need of assistance.

It is not intended here to recommend that every case of illness be reported to the sanitary authorities; for it would

be impracticable continuously to investigate each and every case; and unless some definite action follows a report, the making of reports is likely to be seriously objected to, and very justly so. What is needed, however, is the vesting of sanitary authorities with power to require the reporting of cases of any disease that such authority may be investigating, and of every disease against which the sanitary authority is prepared to take definite preventive action requiring a knowledge of the existence and the location of the individual cases. If it be desired to study the incidence and causes of diarrhea, that disease should be made reportable so long as the investigation is in progress. If the investigation discloses measures that the sanitary authority can take for the prevention of the disease and the adoption of those measures requires a knowledge of the existence and location of each case, then reports of diarrhea should be required at all time. If it is desired to investigate in like manner the prevalence of pneumonia, the same course should be followed. And so on.

In the absence of any method for procuring a record of illness from the entire community, something may be learned by the systematic use of the records of hospitals and dispensaries. A record from day to day or from week to week of all the infants admitted to the hospitals or presented for treatment at the dispensaries would give at least an index to the prevalence and distribution of disease in the community and might afford a fair basis for at least a superficial investigation.

STATISTICS OF DEATHS

Mortality reports are the chief stock in trade of the average student of infant mortality, and in many cases his only stock. On the one hand, the gravity of death and its effect on the family and friends of the deceased, and on the other hand, the comfort and joy of convalescence, by contrast obscure in the minds of the average thinker the seriousness of the results that may be due to illness that does not terminate in death. Then, too, it is comparatively easy to obtain statistics of death, but by no means easy to obtain statistics of illness that does not kill. The collection and compilation of mortality statistics is, therefore, recognized generally as a legitimate function of the government, although unfortunately it is not always recognized, as it should be, as one of its essential functions. All of these circumstances have given to statistics of death in the mind of the average statistician an exaggerated importance and value. As a matter of fact,

however, each death registered must be looked upon merely as an incident in a group of cases of illness and studied as such.

In a city no difficulty is likely to arise in effecting a complete registration of deaths, provided there is anything resembling an effective registration law and any serious attempt to enforce it. Let the law but provide that no dead body shall be buried until after the issue of a burial permit by the proper registration office and hold the undertaker and the superintendent of the cemetery each personally responsible for any violation of it, and it will bring into the registration office a record of all deaths, if there is a competent officer properly equipped with official machinery for its enforcement. In sparsely settled places, however, difficulty arises. But even in such places the registration of deaths can be effected by the adoption of measures similar to those recommended for bringing about the registration of births; by requiring all vendors of coffins to report to the registration officer each coffin sold by him, and details as to the proposed use of it; and by imposing upon the clergyman who officiates at the funeral and upon the person in charge of the burial ground, as well as upon the physician in attendance during the last illness, if there was one, the duty of seeing that the death is reported; provided, of course, there is some competent official responsible for the enforcement of the law. The method adopted in Indiana, requiring the coroner to exhume every dead body found to have been interred without a permit and to hold an inquest over it, would presumably be effective, especially where, as in Indiana, the coroner is entitled to collect certain personal fees for the exhumation and inquest.

SOCIOLOGICAL DATA

It is well enough to know the number, location, and kind of infants in the community in any given period of time; to know the amount and kind of illness prevailing among them; and to know the number of deaths, and their causes. If we know so much we can with more or less hope of success apply to the situation such general remedies as are recommended in text books on hygiene and in other ways. But there will be no directness to our treatment of the situation, and no likelihood that we will ever add materially to our knowledge concerning the conditions causing infant mortality or concerning the prevention of such conditions.

Every case of illness is due to the preponderance of hurtful conditions over those that tend to conserve, and no study

of infant life can be complete which does not include all conditions, those that tend to save as well as those that tend to destroy. The knowledge thus gained may point the way toward the diminution of illness and death, either by stimulating the development of favorable conditions or by eliminating those that do harm, and the very inquiry will have an effective educative influence upon the community. Unlike the statistics of birth, illness, and death, however, data pertaining to social conditions can be obtained only by paid workers, under official direction and control. The data needed have reference to heredity, to the size of the family and of the family income, housing conditions, the employment of the mother, the personal history of the baby, and so on. A record must be kept of general conditions within the community with respect to food supply, water supply, waste disposal, the prevalence of communicable diseases, the cost of living, and other similar data having a possible bearing upon the causation of illness.

WEATHER STATISTICS

Formerly much time was devoted to the study of weather conditions as related to disease, but subsequently, probably because of the barrenness of the inquiry and the growth of the germ theory, there was a lessening in the attention paid to the subject. More recently, however, at least in so far as relates to mortality among infants, there is a tendency again to take it up. Statistics pertaining to the weather may, therefore, be classed among the vital statistics that must be available in connection with the study of infant life. Such data must cover temperature, humidity, rainfall, duration of sunlight, and direction and velocity of wind. They must be recorded so as to show with as much detail as possible such variations as occur in each of these elements of the weather, and so as to permit the study of them individually and in groups. And finally, it must be possible for the investigator, at least until the influence of weather conditions is better understood, to correlate any one element, and any group of elements, with individual cases of illness. Only by such analysis of individual cases will it be possible to determine just what part the weather plays in the occurrence and progress of disease.

METHODS OF STUDY

Probably the chief reason why the vital statistics of this country are in such a deplorable condition is that until recently they were applied to no practical end, and even now there is a vast wealth of statistical material still unexplored.

In the absence of any definite end toward which such statistics were applied, it was naturally very difficult to interest legislators and physicians in them, and unless some substantial use be made of the statistics that are now being collected, it will be hard to maintain such interest as has been aroused.

The collection and compilation of statistics is a very simple matter as compared with the determination of their meaning. And until their meaning has been determined, statistics are useless for all practical purposes, no matter how great their potential value may be. The primary operation toward the determination of the meaning of any statistics is analysis into elementary groups and sub-groups. Thereafter, by varying methods of synthesis and by comparison of these groups and sub-groups with one another and with corresponding groups and sub-groups from other sources, we seek to find their meaning. The chief sources from which corresponding groups and sub-groups are drawn for comparison are other similar places during the same period of time, as City A with City B, and the same place at other similar times, as City A in 1912 with City A in 1913. For some purposes it will be necessary to split into parts the primary geographical unit, usually a state or a city, and the primary chronological unit, usually a year, for the purpose of closer analysis and study.

Such conclusions as may be reached will be valuable in proportion to the number and accuracy of the recorded observations upon which they are based. The variety of correlated matters to which such observations relate tends to add to their value, but with proper care conclusions of some value may be reached with observations of limited scope, if they be sufficiently numerous and accurate. It is, therefore, not necessary to wait until statistics have been collected in relation to population, births, illness, deaths, social conditions, and the weather, before beginning analysis. Even if nothing more than the number of deaths and their causes be known, then by comparing the figures for one year with those of the next preceding year, and so on back for a few years, and by determining variations in relative influence of different causes of death from year to year, the local trend of mortality will be learned. And the trend of mortality within the community gives the very key to the action that is needed, even though it may not show whether the prevalence is too great as compared with other places.

Maps, charts and diagrams are invaluable aids to the analysis and interpretation of statistics, especially when the work

is being done by more than one investigator, either coincidentally or consecutively. They increase, too, immeasurably the practical value of the results of any statistical study, because of the ease with which they may be understood by persons who are without training with respect to public health matters; for just in proportion as they can be understood by such persons, they can be used for the education of the laity, including those who must enact the health laws for the government of the community and provide appropriations for their enforcement.

CONCLUSION

To follow in its entirety the plan of investigation here outlined would require an enlargement of authority and appropriation over such as now ordinarily exist. In no other way, however, are we likely to accomplish the end we seek. The study of deaths alone will not accomplish it. The study of sick babies in hospitals and dispensaries will not do so, however much it may teach us as to treatment. To learn how to prevent disease we must study not only dead babies and sick babies but also well babies. We must study their heredity and their daily life, and when they become ill we must study them in relation to the very environment in which they have been up to the time when illness occurred. In relation to the interests involved, the cost would certainly be no greater than the cost of many another investigation undertaken with possibly less worthy ends in view. And simply as a business proposition such a study of infant life is necessary if we are to know whether the energy and money we are spending for the conservation of infant life is producing the largest and best results of which the expenditure is capable.

Humanity and sound public policy demand the conservation of infant life. Efficiency demands that records of work done toward that end and of results accomplished be kept and analyzed. And for any community to refuse to grant the authority and funds necessary for such work is about as wise as it would be for a merchant to refuse to employ a competent bookkeeper, or for a corporation to try to get along without a controller or an auditor.

DISCUSSION

Dr. Helen C. Putnam, Providence, R. I.: Will Dr. Woodward please give a definition of stillbirth?

Dr. Woodward: I would not require a doctor to report a stillbirth as such. The doctor ought to report as to whether

the child's heart beat, or the child breathed or made any voluntary movement after the extrusion of the body from the mother. A child is said to be stillborn when, after the complete extrusion of the body of the child from the body of the mother, there is no evidence of life whatsoever. It may be there is a gasp or a cry; it may be the child is silent, but there is beating of the heart; or it may be you cannot detect respiration or circulation, but you can detect some other muscular movement. If any of these things occur after the extrusion, that is a live birth and should be registered, whether the umbilical cord be cut or not. The cutting of the cord makes no difference.

Dr. S. Josephine Baker, of New York: Dr. Woodward has covered this subject so completely that it leaves very little for the rest of us to say. Just one or two points occurred to me as being practical in the utilization of vital statistics, as the result of work we have been doing the last few years. The birth record is perhaps the starting point of about seventy-five per cent of our effective baby-saving work. Vital statistics are of value only in so far as they are used. There is little use in trying to maintain a birth registration for purely academic reasons. Birth certificates are of value in the survey of communities to determine not only the births, but the most effective way to reach the new-born babies. In order to achieve the best results it is essential to reach the mother as soon as possible after the baby is born and the birth certificate furnishes the easiest method of doing this. In our attempts to reduce the death rate from congenital debility the mother must be reached before the baby is born, and as yet we have not devised any effective way of doing this. I believe that the great majority of babies who die during the first month of life could be saved if we could reach the mothers early enough. Our present system of birth registration does not help us much in this regard. To be effective, all births should be registered within forty-eight hours. There are some communities that require registration within thirty-six hours and some within two days, but from the reports that I have received I believe that the law is not always observed. Under the present system we use the information contained on the birth returns in order that a nurse may be sent at once to see the mother and put her in touch with the various agencies that may be of service to her and at the same time give her instruction in baby care. This method has been found extremely valuable.

Morbidity statistics, in my opinion, are in many instances of so doubtful a value that I am skeptical regarding them. This is particularly true with the variation in diagnosis made by different physicians. I had an experience about two years ago which causes me to almost entirely discount the value of the analysis we make of the various classes of diseases causing death. At that time the diarrheal mortality in New York City showed a remarkable increase; the total number of deaths of infants was not any larger than it had been for the same period a year before, but it was not the time of year when we might expect gastro-intestinal diseases to occur with any frequency. A decrease was noted in the deaths from so-called "congenital" causes which exactly corresponded with the increase in the deaths from the diarrheal diseases. An investigation of this matter showed that this increase in diarrheal diseases occurred exclusively in the institutions and a further analysis showed that it was due to the death returns from one foundling hospital. A conference was held and one of the physicians of the institution in question stated that he thought he knew the reason for this increase and would take steps at once to have the matter changed. It seems that the institution had a new house physician. He had been reading the bulletin issued by the Federal Census Bureau relative to the causes of death that would be accepted. This list states that malnutrition would not be accepted as a cause of death. New York, however, has always accepted this diagnosis, if explained. The house physician, thereupon, began certifying that gastro-enteritis was the cause of death in each instance, entirely eliminating all of his marasmus cases and the other so-called causes of congenital debility. As soon as he was compelled to record the proper diagnosis on the death certificate the number of deaths from diarrheal diseases fell with astonishing rapidity. The decrease was over fifty per cent the first week after the man's attention was called to the undesirability of his methods. I doubt if we can obtain under our present system any accurate morbidity statistics and so, for the present at least, we must depend upon our mortality statistics as the best basis we have for investigation. This can be used in many ways and a record of infant mortality can be kept from day to day, carefully expressed in chart form or by so-called pin maps, so that whenever there is an increase in any particular kind of disease in any particular locality an immediate investigation may be made of that area.

There is another point of view regarding statistics which you may be gathering. In statistics which have for their

basis answers given to questions, there is great danger in assuming that deductions drawn from such statistics are true. Four or five years ago I made a personal investigation of five hundred deaths of babies under one year of age. I visited each home and asked the mother the usual questions regarding the care of the baby before its death. Invariably the mothers were on the defensive, feeling that they were to be blamed, so that, when I asked if the baby had been breast-fed, they almost invariably said, "Yes, entirely so." If I asked if the baby had been given water, they told me that it had, every day. The inquiry as to whether it had been taken out regularly and whether it had been bathed frequently was most always answered in the affirmative. I then canvassed the tenements to find five hundred well babies under one year of age, and put the same questions to the mothers. In these cases the well babies were usually playing on the floor in a contented manner and the mothers had exactly the opposite mental attitude to what I had encountered before. These were rather boastful, so that when I asked as to the manner of feeding I found a very low percentage where the baby was fed entirely on the breast, but in a large number of instances the mothers stated that they gave the baby any food that it seemed to want. When I asked if they were taken out regularly, the mothers said, "No, only when an opportunity presented itself." They said, in a large number of instances, that they did not open their windows except when the weather was good; that they gave the baby water only when they thought of it. The only reasonable conclusion that could be drawn from these two sets of figures was that the way to kill a baby was to breast feed it, to keep it in a well-aired room, to give it water and to take it out. So much for the danger of depending upon this kind of information.

There is a further point, however, and that is that the average record card of most of our cases is a record of opinions and I want to warn against accepting statistics which are based upon opinions and not upon facts. I do not believe that a visitor or nurse has a moral right to put down upon a baby's record card the fact that the baby sleeps in a well-ventilated room unless she has seen it do so, and that the baby is breast-fed unless she knows from experience that this is true, otherwise we are apt to be led astray by an immense amount of statistical data which is not based upon facts. There is one use of vital statistics which Dr. Woodward mentioned, and that is their value as a publicity weapon. I believe that four or five years ago it was an unusual thing for

a newspaper to publish vital statistics, but we have now found out that they can be presented in such a way that the newspapers will accept them and publish them and public interest may thus be aroused. This is a very valuable method to be used in any attempts to raise money for the support of the work in which we are engaged.

The Chairman: We will be glad to hear from Dr. Holt.

Dr. L. Emmett Holt, New York: There are too many statistics circulated that have for their main purpose inducing people to give contributions to support the work. I have in mind the report of a babies' welfare association as it is issued every week in New York. They issue a report of so many milk stations in operation, the number of children served, say 20,000; the mortality among the children coming to the milk stations being about half of one per cent of the mortality of the children treated in institutions. The conclusion to be drawn from these statistics is that the only way children can be saved is in that milk station. I think we might just as well say that the mortality for the period among the well children was half of one per cent and among the sick children it was very much greater. As a matter of fact we have had during the last year a considerable number of intestinal cases referred to us from the milk stations. A large proportion of those referred, died within twenty-four hours after they were received. The inference is that the milk station kept the children under observation until they saw they were likely to die and then turned them over to the institution. These statistics convey an erroneous impression and are injurious, because we are all working for the one thing and that is to save life. I am not criticizing the work of the milk stations, but their way of using their figures.

I wonder if Dr. Woodward appreciates how extensively the publication of names and addresses in birth registration may be used by agents of patent food, men who distribute samples. I don't see that such publication of birth registration is likely to do much good. I can see some harm coming from it. It may be useful in that it stimulates people to register. This matter of statistics is very important and we are making great progress. It is not necessary to discredit the work of others who are doing a different kind of work. One must make his report according to the material which he has. If

the milk stations would follow up these children to death or to the end of the season, and then credit the deaths to the milk stations, a fair estimate of the results of work could then be made.

I wish to enter a strong protest against the misuse or abuse of statistics by financial agents or business secretaries whose motive is not scientific but commercial. We should strive to be honest not only in our work, but in the published reports of it.

Dr. John S. Fulton, Baltimore: I find myself greatly interested in this discussion, and particularly in the remarks of Dr. Baker and Dr. Holt, concerning the questionable uses which are so often made of statistics. Statistics have always been greatly abused, but their adaptability to misuse is only the reverse of the very high utility for the best purposes. Numbers have no morals. At an early period in the controversy between St. Louis and Chicago concerning the Chicago drainage canal, the St. Louis Health Department sent a circular letter to all the physicians, calling their attention to the frequency of error in the diagnosis of typhoid fever, and particularly to the careless use of vague terms, such as "continued" fever, "malarial" fever, "typho malarial" fever, and other expressions of uncertainty in diagnosis. This correspondence promptly resulted in an apparent increase of typhoid fever in St. Louis, and it was not noticed until long afterward that the increase was fully explained by a corresponding decline in a few other particulars of morbidity and mortality.

A little later, in Maryland, we planned a simple experiment to test the reliability of our certificates of death from pneumonia. Our circular letter, to all the physicians in the State, asked them to distinguish more clearly between lobar pneumonia, and broncho pneumonia, and when death was due to the pneumonias which occur in consequence of measles, whooping cough, grip, etc., to be careful about specifying the primary causes. The apparent great diminution of pneumonia mortality, which followed this correspondence, was wholly accounted for by this circular letter, but an over-enthusiastic student of statistics might have made a stirring story of the great conquest we seemed to be making, when, in fact, we were simply making a better arrangement of the same numbers.

About that time, the City of Chicago was enjoying the promotion of pneumonia to the captaincy of the "Men of Death." The Health Department was actively disputing the

right of tuberculosis to hold the title "Captain of the Men of Death." The propaganda of the Health Department was highly suggestive and pneumonia appeared to be making a powerful race for the championship. It is entirely probable that the apparent increase in pneumonia was fully balanced by diminutions in mortality from measles, whooping cough, grip, etc., the whole numbers undergoing no change whatever.

One must remember that it is unusual for a death certificate to mention only one cause of death. The certificate asks for the secondary as well as for the primary cause of death. But one person is dead, however, and only one cause of death can figure in the statistics. We must sacrifice part of our information for the sake of recording the more important part. This distinction is generally made in accordance with a well established international understanding, but it is impossible to wholly exclude personal judgment, and that means an element of bias.

The registration of births is now making substantial progress in the United States, and eventually, no doubt, we shall outlive the national reproach of indifference to this duty. Dr. Baker spoke in a spirited way about the needs of immediate registration of births. In the older countries, where there is a generous time allowed for the registration of births, they are now discussing the need of immediate "notification" of births, as if they might require two separate acts of information about births. In Maryland, births must be registered within four days. A recent prosecution by the State Department of Health was of unusual interest. This prosecution was based on information to the effect that a living birth had occurred, that death had followed on the same day, and that the body had been disposed of on the premises, without a burial permit, a registration of death or a registration of birth. When the case came to trial, it was found that the body was that of a fetus of four months. The physician was convicted of failure to report a birth. We have no legal definition of a stillbirth in this country, nor does European practice furnish us a good definition.

We must have more information about ante-natal mortality, and much could be learned from the records of stillbirths. For a thousand children born alive, about 605 have perished either in or out of the uterus before their proper birthday. That statement may lead to some confusion, unless you can give up the idea that a birthday is a biologic fixture. Age is reckoned from one's birthday, but our true

ages may be a good many days younger or older than we believe. At all events, about 1,605 pregnancies are required to bring 1,000 babies alive on their proper birthdays. More than 600 will have died before that time. Fully one-third of that mortality of infancy, which we say is preventable, is not preventable by measures applied after the birthday. For the purposes of restricting this kind of infantile mortality, we must take into account the whole period of utero gestation; we must understand that one-third of the mortality of the first year following birth, results from causes arising in the nine months preceding birth.

Dr. C. E. Ford, Cleveland: In reference to Dr. Holt's statement concerning the publication of reports of births, I wish to say that in Cleveland, several years ago, we found that undue advantage was taken of this information by druggists, patent medicine men, and credit furniture houses. Poor families were loaded up with things they did not need, and their finances were seriously embarrassed. Dr. Baker spoke of a personal investigation as to feeding, in a given number of families. Some years ago we made a similar investigation in Cleveland, one inquiry being made of the mother, and the other of the physician. Ninety-eight babies out of a hundred that had died had not been breast-fed. Another investigation was made this year, and it was interesting to note, by way of comparison, that seventy-four per cent of those that died had not been breast-fed.

Dr. Philip Van Ingen, New York: Dr. Woodward has brought out the importance of stillbirth records. In speaking of infant mortality rates, we do not include stillbirths, and often forget the great loss due to accidents or conditions occurring during or before birth. In New York City, from 43 to 45 in every 1,000 pregnancies end in the loss of the product of conception before birth.

For the first time in the history of this country, we have from the Census Bureau figures from widely scattered areas on mortality by age groups under one year. In studying these one thing has been impressed upon me very strongly, and that is the need of more uniform methods of tabulating our statistics.

Suppose we are interested in the deaths under one month of age. When we look at the figures for Memphis we find that of the 345 deaths under one year of age, 27.5 per cent occurred during the first month, while for the whole registration

area, 37.6 per cent of the mortality in the first year of life is credited to the first month. This looks like a very good record for Memphis. But if we look a little farther, we will see that not a single death is credited to the first day of life. In the registration area nearly ten per cent of the first year mortality occurs in the first day. I presume that all such deaths were classed as stillbirths, and not counted as deaths.

Mr. Lewis Meriam, Federal Children's Bureau, Washington, D. C.: The Federal Children's Bureau has been trying to make birth registration popular, trying especially to interest the women of the country in it. The first pamphlet issued by the new Bureau was entitled "Birth Registration, an aid in protecting the lives and rights of children; necessity for extending the registration area." After the publication of this pamphlet Dr. Wilbur suggested a method for interesting the women in birth registration through the women's clubs, on the theory that when the women of the country demand that the births of their children be registered the task of the registration officials will be greatly simplified. Our method is to write to the state presidents of the various women's organizations asking them to suggest persons in the different towns who would be glad to help us in making a test of the completeness of registration in their communities. We ask the women designated by the state officers to name committees in the different towns and have each member secure in any way, except through the newspapers, addresses of several children born during the preceding year and then go to the registration official and find if those children have been registered. We have done this in many States and are meeting with cheerful responses from the women. When an organized body of women learns through an actual test performed by some of their number that the babies of the community are not receiving the recognition from the State that the law requires and when they begin to publish this fact broadcast something ought to happen for the improvement of birth registration.

Dr. S. Josephine Baker, of New York: As part of our classification of the mortality statistics in New York City certain deaths are given as they occur in dwellings and institutions. These figures are presented at their face value and are not intended as a criticism of the institutions. Institutions that are really babies' hospitals and that take sick babies should not be classified with the institutions that are maintained for foundling babies who are, in a large majority of instances, well. The combined classification of this nature is mislead-

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ing. Whenever a baby ceases to attend a milk station the case is followed up until it is clearly evident that the child is absolutely well or, if ill, the case is followed until the termination of the illness is known. Whenever a baby that has been in attendance at a milk station dies, whether under the care of a private physician, a children's clinic or a hospital, the death is recorded against the milk station. In order to doubly guard this fact and to have our milk station statistics as accurate as possible, during the past summer from June 15th to September 15th I have had every death of a baby under one year of age in New York City investigated to find out whether or not it had ever been in attendance at a milk station or had ever received a visit from a visiting nurse. In this way we have been able to inform the various milk stations of the deaths which should be counted in their records. Some of the milk stations are most conscientious regarding this matter, but there are others that go under the name of milk stations and yet have no educational work, that is, they have no doctors or nurses to follow up the patients in their homes, consequently when babies cease to attend such stations it is not possible for the stations to know whether or not they are ill or if death has occurred. We have been very anxious to determine the absolute value of the milk stations and I feel very strongly that in order to do this we must be absolutely honest with ourselves and take discredit as well as credit for everything that occurs in relation to milk station work. Our object is to find out its real value and not to make a record.

Mrs. William Lowell Putnam, Boston, Mass: The registration of stillbirths seems to me to be a very important matter, and one which is very much overlooked. If the stillbirths were correctly reported and registered, I cannot but feel it would have more to do than anything else in bringing before the public the importance of prenatal care. We have been doing prenatal work in Boston for four and a half years. I believe we were the pioneers in this movement. We have found that we can improve the work constantly as it goes along. For the last two years our stillbirths have not exceeded 18.6 per thousand. In the City of Boston at large they have been 39.3 for the last year and 39.9 the year before. In the Borough of Manhattan last year they were 48.6 per thousand. We have also been enabled largely to reduce the percentage of premature births. Last year we had only four-tenths of one per cent of premature births, and we feel that must rebound toward the general health of the community.

PROGRESS IN VITAL STATISTICS AND BIRTH REGISTRATION

CRESSY L. WILBUR, M. D., Bureau of the Census, Washington, D. C.

During the present year laws based on the model bill providing for the registration of births and deaths have been adopted in Arkansas, North Carolina, and Tennessee, and for births alone in Delaware. Earnest efforts have been made to procure such legislation in Georgia, Illinois, Iowa, and other States. The campaign once begun never ceases until the victory is won, so that it is merely a question of time before these States will have adequate legislation.

The laws recently passed in Mississippi and Virginia have begun to yield practical results. The Mississippi law, with the beginning of this month, has been in operation for its first year. A detailed statement of the results is not available, but 30,000 births have been registered, of which practically all would not have been recorded if the law had not been passed. There are many difficulties in the way of successful registration in the far South, but the law is a success and its continued support is all that is necessary for thoroughly satisfactory results.

In Virginia the model bill has been in operation a little longer, namely, from June 14, 1912, to the present time. For the first year of its operation nearly 50,000 births were recorded. This does not represent all the births that occurred, but the proportion is fairly high and it only requires more cordial support on the part of the medical profession and necessary pressure to enforce penalties for neglect by physicians and midwives to obtain complete returns. The registration of deaths has been somewhat better, so much so that the Director of the Census has authorized the admission of Virginia as a registration State for the calendar year 1913.

A very important feature of the statistical progress of the year has been the adoption in New York of revised legislation based largely on the model law. The registration of births in New York City has been greatly improved within the past few years by more thorough enforcement of the law, but the registration in the State at large has not been so good. It is hoped that the new law, if thoroughly organized and carried out with prompt enforcement of the penalties when required,

will make the registration of births in the Empire State complete and serve as a model for the enforcement of such legislation in other States.

A most notable publication for students of infant mortality is the recently issued Seventy-fourth Annual Report of the Registrar-General on Births, Deaths, and Marriages in England and Wales for the year 1911. Doctor Stevenson, the medical superintendent of statistics and editor of this report, has given special attention to some most important and interesting phases of infant mortality, among them the study of occupations of fathers as related to the incidence of mortality by ages and causes under the first year of life. You may perhaps remember that at the Baltimore meeting I urged that the high rate of infantile mortality was not a necessary condition of human life. The results shown by Doctor Stevenson for certain selected occupations, in which special care or attention may presumably be given to the infants, would indicate that for a large group the infantile mortality may be exceedingly low. A prominent constituent of this group are medical practitioners whose children showed an infantile mortality of only 39 per 1,000 as compared with the general rate of all occupations for the year of about 130, and of 171 in the occupations, chief among them general laborers, showing the highest infant mortality. The whole report will repay most careful study, and is an indication of some of the useful data that we should have for this country if only we could obtain the thorough registration of births, which lies at the foundation of the figures given.

Through the courtesy of Dr. Antonio Vidal, who is present, I have had the pleasure of examining the proofs of the text and tables of the report on demography of the *Anuario Demográfico de 1911*, Departamento Nacional de Higiene-Oficina Demográfica. This report is a notable one, because, for the first time, it contains vital statistics for the entire Argentine Republic. By vital statistics in Argentina is not meant mortality alone, but births, stillbirths, deaths, and marriages as well. Argentina is a vast country. If superimposed upon the United States it would extend beyond our northern border in the region of Hudson's Bay down to the southern tip of Florida. It is not densely populated, and many of the difficulties that we have encountered in the registration of vital statistics have to be met also in Argentina. It is gratifying indeed, therefore, that success has been attained by our southern neighbor, and I hope that the time may come, not too far in the future, when we may also say that there is

complete registration of the vital statistics, births, marriages, deaths and divorces also, which are more important in the United States than in Argentina—in every State of the Union.

DISCUSSION

Dr. Antonio Vidal, Department of Health, Buenos Aires, Argentina: The topic which is studied in this section: "Vital and Social Statistics" interests me very much, and also interests my country, which has just decided to take a new census. We cannot overestimate the importance of this matter as regards the investigations and work of public hygiene. Nor can we forget today that these investigations, if they must have a real scientific character, must be based on positive data. To obtain these figures, to add them and to compare them, connecting them with various useful factors, and to accomplish all this through the best, the most uniform and internationalized procedure, is to accomplish a work of fundamental importance. This progress is the certain basis for future advancement. Good and careful statistics are needed in hygiene and are an indispensable tool in its various forms of technique. I have noted the grasp that this idea has on the minds of the hygienists of this country with satisfaction, and I have followed it in many of the studies published in the Transactions of the American Association for Study and Prevention of Infant Mortality and also of the American Association of Public Health. I am also particularly impressed by the advanced and scientific manner in which Dr. Cressy L. Wilbur, chief of this Division, in the Census Bureau, has compiled and commented on them; his work is highly appreciated in Argentina, as in other countries. Let us hope that the complete and strict birth and death registration in all the Union will be obtained and that all the difficulties it struggles with be overcome.

Fortunately, Argentina has just overcome the difficulties which are met with in compiling the vital statistics of a nation. First the nation, and then the various provinces, have been enacting laws regarding the "Civil Register," with obligatory enrollment of births, deaths and civil acts, under severe penalties for failure to register. In this manner a mere computation of results gives us total figures for our entire country. The first demographic statistics of the Argentine Republic are those for the year 1911. The National Bureau of Hygiene has done this work under the direction

of Dr. Jose Penna. (The Demographic Section is a part of this Bureau and its chief is Dr. Adela Zauchinger.)

We promise to keep technical and other students informed of what interests them in our work, since the Argentines greatly wish to interchange scientific and cultural relations between both countries. The principal figures and proportions which have been obtained for the whole country for the year 1911 as regards births, stillbirths, general and child mortality are as follows: The proportions are calculated on the Republic's having a population of 6,612,816, which is certainly less than the forthcoming general census will give us. Births, 262,317. Proportion per thousand, 39.3. (In comparison with 19 countries, Argentina occupies third place, after Russia and Roumania.) Stillbirths, 9,049. Proportion, 3.44 stillbirths for every 100 children born alive. (Argentina occupies an average position in this respect, more favorable than Japan, Belgium, France, Holland, Switzerland and Sweden.) General mortality, 125,727. Proportion, 18.09 per 1,000. (Proportion nearly equal to that of Germany; exceeds that of France, Italy, Spain, Russia, Roumania; less than that of Belgium, England, Holland, Switzerland and Sweden.) Deaths in early childhood between 0 and 2 years, represent 78.6 per cent of the infant mortality and 38.34 per cent of the general mortality. It should be particularly noted that in some parts of the country deaths of very young children reach such a high proportion that they comprise half of the total mortality.

I will not linger longer over comparative appreciations or on technical details. I will merely state that I have estimated a maximum figure of 14,000 children whose lives can be saved in Argentina by the application of hygiene and preventive medicine. These lives to be saved can be called the "Crop of Puericulture"—a crop to be gleaned but not already harvested. This computation should approximate what has been done in other countries.

The Chairman: That is a very encouraging report from our sister republic. We are glad to have Dr. Vidal with us.

Miss Van Trump, Washington: The health officer probably does not realize with what interest sociologists and social workers watch for these reports. In March, 1910, a statement was published that in District No. 12 of the City of Washington more deaths had occurred in a certain area than for the city as a whole. The social workers of that district got together, and we are trying now to lower that death rate and

trying to get together the different constructive forces. And now we would like the health department to send its investigator and make another investigation and another report, to find out whether we have practically applied that information.

The Chairman: I will now call upon Dr. Woodward to close the discussion.

Dr. Woodward: In connection with what Miss Van Trump says it may be interesting to know of the methods by which we try to apply our vital statistics to practical purposes. This District of Columbia is only a small area but it is utterly useless for me as health officer to know that the death rate in an area of even sixty square miles is 17.73; I cannot effectually cover even that area with my force. So years ago we divided the entire District into what we designated "vital statistics districts," and since then we have compiled our statistics for each such district separately. For each district we know the population and the deaths from different diseases. So we group them together in these restricted areas, compare one area with the other, and thus determine which is *prima facie* the most insanitary. Suppose Vital Statistics District No. 5 has a high death rate and No. 8 a low death rate, but that we find in No. 5 a large colored population. We know that the colored people have a high death rate, and therefore the high death rate in No. 5 may be due simply to the race composition of the population. In another district which has a high death rate we may find a hospital or another institution that accounts for the apparently excessive mortality, notwithstanding the fact that all deaths in hospitals and other institutions are, as far as practicable, charged back to the last residence of the deceased and not to the hospital.

Dr. Fulton said we have no purpose in studying vital statistics. If we have not, we might just as well not collect them. The trouble is we have had no purpose in doing so, but we must have a very definite purpose, and that is to secure information that will lead us to intelligent action. The minute we begin to look ahead and see that we must take some action based upon the information we get, we will no longer try to fool ourselves or anyone else. A man may try to fool himself into believing a thing, but he will not long persist in trying to fool himself into doing a certain thing. The study of statistics with a view to action will lead us to an honest study of them.

In all institutional death certificates in this District we have two statements, one of which enables us the better to interpret the other. The certificate requires a statement of the duration of the last illness and of the length of time the deceased was an inmate of the institution. When anyone dies in an institution, the institutional authorities make out the death certificate. If an infant has been sick eighteen days and dies, the hospital doctor is the one who records that and not the milk station physician. I do not like conclusions drawn from statistics by statisticians. A bookkeeper may tell you how your balance stands, but he cannot tell you why it is that way; that is the work of the business man. We have a good illustration of this in the discussion between Dr. Holt and Dr. Baker. Dr. Holt thinks that milk stations do certain things and institutions do certain others. Dr. Baker says some milk stations do and some do not. She further says that while some institutions deal largely with sick babies, other deal largely with well babies, and that you may have groups of institutional infants more or less fairly comparable to milk station infants. We have to study statistics with a great deal of insight, and we have to apply them with a great deal of imagination.

Reference has been made to the use of the published names of parents and children born, for advertising purposes. That has never come to my notice. We do not publish the addresses. Of course, a search might be made in the directory for such addresses, but if we found that being done, we would stop publication.

Question: Do you publish the names of illegitimate children?

Dr. Woodward: We do not. The physician or midwife need report nothing that discloses the identity of the parents or of the child. They simply write where the names of the parents would go the word "illegitimate." They can leave off the rest. This assists us in getting a fair return of illegitimacy. In one section of our population for the past two years we found between 20 and 25 per cent of the births have been frankly and openly reported as illegitimate. In another group only about two or three per cent. If we did not permit the names to be omitted I doubt if we would get those returns. We have had men come who were willing to pay for the names and addresses of the newly-born children, but declined to let them copy the names. One carried the matter

to the corporation counsel and I was told that I had no choice. I had to let them do it. But the law was changed and now we do not let those names be copied.

Dr. Baker referred to erroneous diagnoses as an element of error. That will always be an element of error until we have every body examined post mortem. Possibly some errors will creep in them. But the error is no greater if as great, in the living cases than it is in the dead cases; because when a doctor is required to state his diagnosis as to the causes of death and gives a death certificate, he knows the account is closed. On the other hand, if he has to record the nature of the illness from which a living patient is suffering, that is with a view to an investigation, he will be quite as careful, or even more careful, to make sure that his diagnosis is as nearly accurate as he can make it. With respect to all such matters we have to trust to what is sometimes called the law of the long run. The larger the number of data upon which our conclusions are based, the less we will be liable to error. Say ten deaths from pneumonia of 100 cases, the factor of error of diagnosis would be reduced by the increased number of cases under consideration. This very fact that we cannot rely on the statements of the mothers of *dead* babies, nor on the statements of the mothers of *well* babies, is probably the correct reason for getting the information we can for the mothers of *sick* babies, in the hope that they would tell the unbiased facts to save their little ones.

GENERAL SESSION

Monday, November 17th, 2.30 P. M.

PART I.

REPORTS ON BABY-SAVING ACTIVITIES IN THE DISTRICT OF COLUMBIA

DR. SAMUEL S. ADAMS, Chairman of the Committee on Local Arrangements, Presiding

THE DEPARTMENT OF HEALTH

EFFICIENT BIRTH REGISTRATION

Dr. Arthur L. Murray, Department of Health, District of Columbia: The ways and means of securing more complete registration of births is a matter which of recent years has occupied the attention of every progressive municipality. Washington aspiring to that class, the Health Department has devoted serious efforts to improve its birth registration.

For a better insight into the lines along which these efforts have been directed a brief review of the past is permissible.

By an Act of Congress approved May 3, 1802, the City of Washington was incorporated but it was not until 1819, that the need of a Health Officer was deemed necessary. By an act of the Board of Aldermen and Common Council approved August 4, 1819, a Health Officer for the City of Washington was first provided. Among the several duties devolving upon the health officer was the registration of deaths but no mention was made of births or marriages. However, on April 14, 1821, the Board of Aldermen and Common Council enacted the following:

AN ACT TO PROVIDE FOR THE REGISTRY OF BIRTHS, DEATHS AND MARRIAGES IN THE CITY OF WASHINGTON

Be it enacted by the Board of Aldermen and Common Council of the City of Washington, That whenever hereafter any child shall have been born in the said city, it shall be the duty of the head of the family in which such child shall have been born, or such person as may for the time being, have principal charge or superintendence of the affairs of such, family, to cause to be made out and delivered within six days after such birth to the commissioner of the ward in which such birth may have happened a certificate thereof, stating distinctly the date of

such birth, the sex and color of such child, and whether stillborn or not; which certificate it shall be the duty of said commissioner to deliver to the health officer of the city for the time being, within six days after the receipt of the same. (Other paragraphs of this Act related to deaths and marriages.)

In 1822 by an act of the Board of Aldermen and Common Council the safeguarding of the health of the City of Washington was taken from a health officer and vested in a Board of Health.

The above law relating to the reporting of births remained in force until 1853 when the provision requiring the reporting of births to the ward commissioner was changed to one requiring the reports to be made to the member of the Board of Health for the ward in which the birth occurred.

As to the manner in which births were reported during this period I will read two extracts from annual reports of the president of the Board of Health:

EXTRACT ANNUAL REPORT, THOS. MILLER, PRESIDENT
BOARD OF HEALTH, 1852

"So few returns of marriages and births have been made to the Board, that no practical benefit would be gained by reporting them. The act regulating this subject, containing no provision for the enforcement of its requirements, has been, almost entirely, disregarded by those who should make returns. It is left to the wisdom of the Councils to say whether the subject is one of sufficient importance to occupy their attention; and if so, to devise the most effectual method of securing correct and regular returns." . . .

EXTRACT ANNUAL REPORT, THOS. MILLER, PRESIDENT
BOARD OF HEALTH, 1854

. . . "In concluding this report the Board regrets to state, that the ordinance relative to the registration of marriages and births is virtually null and void, not a single return of either have been made to the Board within the past year."

Apparently the reporting of births with any degree of accuracy was not accomplished until after the enactment of the following:

AN ACT IN RELATION TO REPORTS OF BIRTHS WITHIN THE DISTRICT OF
COLUMBIA, APPROVED AUGUST 18, 1871

Be it enacted by the Legislative Assembly of the District of Columbia, That it shall be the duty of every physician, accoucher, or midwife, who shall attend at the birth of any infant within the District of Columbia, to forward a report to the Board of Health of said District within six days after such birth, stating distinctly the date of birth, the sex and color of the child thus born, its physical condition, whether stillborn or not, and the name and nativity of the parents of such child;

and any such physician, accoucher, or midwife, who shall fail to report as herein required shall be punished by a fine of not less than five or more than ten dollars for each and every offense.

Under this act it is noted for the first time that the responsibility for reporting births is placed upon the person in attendance. This change apparently stimulated an increased interest in the reporting of births, which reports increased during the following three years from 1652 to 3915. This act also was the first ordinance to carry with it a penalty clause for failure to report births.

In 1874 the Board of Health which had previously been granted the power of making regulations decided to consolidate and augment the several laws governing vital statistics. As a result the following was promulgated:

Regulations to secure a full and correct record of vital statistics, including the registration of marriages, births, and deaths, the interment, disinterment, and removal of the dead in the District of Columbia.

The third paragraph of these regulations pertaining to births read thus:

Third. That any physician, accoucher, midwife, or other person in charge who shall attend, assist, or advise at the birth of any child within the District of Columbia, shall report to the registrar aforesaid, within six days thereafter, stating distinctly the date of birth, sex, and color of the child or children born, its or their physical condition, whether stillborn or not, the full name, nativity, and residence of the parents, and maiden name of the mother of such child or children.

By an Act of Congress Approved June 11, 1878, an Act to provide a permanent form of government for the District of Columbia, the administration of the Health Department was transferred from a Board of Health to a Health Officer.

For the next thirty-four years the above regulations of the Board of Health relating to the reporting of births remained in force. On April 20, 1908, our present law was enacted by Congress. This law I will take up by sections:

AN ACT TO PROVIDE FOR THE BETTER REGISTRATION OF BIRTHS IN THE
DISTRICT OF COLUMBIA, AND FOR OTHER PURPOSES

[34 Stats., 1010.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any physician or midwife who attends at the birth of any child within the District of Columbia, and any person whosoever who, in the absence of a physician or midwife, performs any of the offices usually rendered by such shall execute or cause to be executed and shall file with the health officer of said District not later than the Saturday first ensuing after the expiration of three secular days immediately following the date of

such birth a proper report thereof, written in ink, on a blank furnished by said health officer, embodying all such data as may be necessary for the purposes of the Bureau of the Census of the Department of Commerce and Labor, and such other data, if any, as the Commissioners of said District deem needful. So far as relates to any data aforesaid not based upon the personal observation of the physician, midwife, or other person by whom report is made every such report shall show the name and address of the informant and the relationship of said informant to the child born: *Provided, however,* That if the child born be illegitimate it shall in no case be necessary for any physician, midwife, or other person to indicate on any report required by this act any fact or facts whereby the identity of the father or of the mother or of the child born will be disclosed: *And provided further,* That no report need be made of stillbirths when the fetus delivered has apparently not passed the fifth month of utero-gestation.

Upon receipt of any report aforesaid, said health officer shall forward to the father of the child, or, if his address be unknown, to the mother, an acknowledgment of the receipt of such report, and if the infant delivered be not stillborn, and such report does not contain the given name of the child born, a blank form on which the father or mother may certify over his or her signature the name of such child, which form, if thus executed and returned to said health officer within three months next following the date of birth, shall be a part of the official record of such birth.

Section 1, I will separate under three headings:

A. This portion covers the mandatory provision requiring the reporting of births. Such a requirement had been upon the statute books in one form or another since 1821.

B. Time limit for reporting births permitting a maximum period of ten days. Attention will later be called to this feature of the law.

C. Acknowledgments of births. This provision by which the department is required to send to the parents an acknowledgement of the receipt of a report of birth is without doubt one of the most important means of securing complete returns of births. This law has now been in effect virtually six years during which time the public has through the receipt of these acknowledgements been educated to a point where at the present time failure to receive such an acknowledgement from the department following a birth calls forth an immediate inquiry.

SEC. 2. That no person shall, in the District of Columbia, willfully or negligently certify falsely to any fact whatsoever upon any report of a birth. And after any such report has been received by the health officer of said District no person shall alter the same otherwise than by amendments written independently of the body of the report and properly dated, signed, and witnessed. No person shall in said District make any false or fictitious report of a birth or any false or fictitious transcript of any record of a birth or of a marriage.

Section 2. Safeguards and insures the integrity of the official returns of births.

SEC. 3. That the reports required by this act shall, when duly filed with the health officer of the District of Columbia, be a part of the public records of said District, and any person having an interest in any particular matter contained or reasonably believed to be contained therein shall be permitted to inspect such certificates and reports, during all reasonable hours, without charge, so far as can be done without interfering with the official use of such certificates by employees of the health department. The health officer aforesaid shall be the custodian of all reports filed under the provisions of this act, and annually, and at such other times as the Commissioners of said District may direct, shall make and publish abstracts and analysis of the data therein contained.

Section 3. The latter part especially pertaining to publication of births is another feature of this act which makes for a more complete return of births. A birth is usually considered an important event in the affairs of a family and inasmuch as the list of reported births is published daily, failure of a notice of a birth to appear in the papers within due time after its occurrence is invariably noted by some member of the family or other interested party and soon calls forth an inquiry as to its absence.

SEC. 4. That any person violating any of the provisions of this act or aiding or abetting in any violation thereof shall be punished by a fine not exceeding two hundred dollars or by imprisonment for a period not exceeding ninety days, or by such fine and imprisonment, in the discretion of the court. And if any report required by this act to be made within a specified time be not made within the time so specified each week or part of a week thereafter during which such report has not been made shall constitute a separate and distinct offense: *Provided, however,* That no report aforesaid nor any information which has been obtained by the prosecuting officer on the basis of such report shall be receivable in evidence against the person filing the same in any prosecution of such person for failure to file such report within the time allowed by law. Prosecutions under this act shall be in the police court of the District of Columbia on informations signed by the corporation counsel of said District or by one of his assistants.

Section 4. Penalty, which is very rarely invoked owing to the proviso, and further, because at the present time flagrant cases of neglect to report births are very rare.

SEC. 5. That this act shall take effect from and after the expiration of the six months immediately following its passage, and from and after that time all acts and parts of acts contrary to the provisions of this act or inconsistent therewith shall be, and the same are hereby, repealed. Approved March 1, 1907.

Section 5. This section needs no comment.

It will be seen from the above that the law and the penalty have not been nearly as effective means of bringing about more complete returns of births as have been the several features whereby the public have been educated to demand and to see that such records are properly returned by those in attendance.

Several requirements of recent date as that of certificates of births for school purposes and for the granting of permits to work under the child labor law have in a great many instances aroused parents' interest in the matter of seeing that their children's births are duly reported.

Each year as the public become more and more conversant with their rights and their responsibilities in regard to the reporting of births so also will the returns of births be better safeguarded and more carefully watched for omissions.

An index of the relative completeness of the returns of births is a matter which usually is very difficult to obtain, especially in a city the size of Washington. The Health Officer has, however, devised a method by which a fair estimate of the completeness of the returns of births can be made. Each week the deaths of all infants under one year who were born in the District of Columbia are checked up as to the reports of their births. This method has been followed for two years and the yearly results are as follows:

PERCENTAGE OF BIRTHS REPORTED IN LOCAL BORN INFANTS DYING DURING THE	
FIRST YEAR OF LIFE	
1911	94%
1912	96%

Assuming, and I believe the presumption to be logical, that the ratio of reported births for the District of Columbia is proportionate to the births found reported in local born infants dying during the first year of life, we believe that at the present time our registration of births represents at least 96 per cent of all the births occurring in the District of Columbia.

It will be recalled that in the first section of our present law attention was invited to the time limit for the reporting of births, which limit may in some cases extend over a period of ten days. This time limit we believe to be unnecessarily long, and have, therefore, recommended that this section be amended as follows:

AN ACT

To amend an Act entitled "An Act to provide for the better registration of births in the District of Columbia, and for other purposes," approved March first, nineteen hundred and seven.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any physician or midwife who attends at the birth of any child within the District of Columbia, and any person whomsoever, who, in the absence of a physician or midwife, performs any of the offices usually rendered by such, shall execute, or cause to be executed, and shall file with the health officer of said District within *twenty-four hours* immediately following the date of such birth a proper report thereof, written in ink, on a blank furnished by said health officer, embodying all such data as may be necessary for the purposes of the Bureau of the Census of the Department of Commerce and Labor. So that as relates to any data aforesaid not based upon the personal observation of the physician, midwife, or other person by whom report is made, every such report shall show the name and address of the informant and the relationship of said informant to the child born: *Provided, however*, That if the child born be illegitimate it shall in no case be necessary for any physician, midwife, or other person to indicate on any report required by this Act any fact or facts whereby the identity of the father or of the mother or of the child born will be disclosed: *And provided further*, That no report need be made of stillbirths when the fetus delivered has apparently not passed the fifth month of utero-gestation.

Upon receipt of any report aforesaid, said health officer shall forward to the father of the child, or, if his address be unknown, to the mother, an acknowledgment of the receipt of such report, and if the infant delivered be not stillborn, and such report does not contain the given name of the child born, a blank form on which the father or mother may certify over his or her signature the name of such child, which form, if thus executed and returned to said health officer within three months next following the date of birth, shall be a part of the official record of such birth.

Although as yet this amendment has not been enacted it is most sincerely hoped that within the near future our law relating to the reporting of births will thus be improved.

THE INSTRUCTIVE VISITING NURSE SOCIETY OF THE DISTRICT OF COLUMBIA

Miss Isabel Strong: Whenever we are asked about work in Washington we feel a little dubious as to our results, and we hasten to tell you that we have very broad streets and no tenement houses in Washington, because we know the eye of the nation is on us and we feel that our alley situation needs investigating. This year the nurses feel encouraged because we have heard about the problems of other cities, and our own do not seem quite so insurmountable. Six years ago Dr. Woodward asked us to visit all the babies born under the care of midwives in Washington. We had been brought up to know that midwives' cases should be avoided. But we found that there was nothing in that, and we began visiting the midwives' cases. We never had any trouble; in fact, the midwives are glad to have us come in, and the families also

are only too glad to have us come and visit the babies. Some mothers have written to the nurses and asked—even if a doctor was in attendance—if we wouldn't also come and visit the babies. Our duties in caring for the midwives' cases were especially in reference to the eyes, to report on eye conditions and record our results on the Russell Sage Foundation record cards, which we have found very useful. The discharged cases are sent in to the Health Department every month. In reference to the eye cases our work is steadily improving. This has been accomplished in part by the preventive work which the Health Department is doing through the midwives. Last year we had twenty-four cases reported, and among the 7,000 babies we have handled during the six years we have done the work, there is only one baby in the City of Washington that has lost the sight of one eye. The rest of the work which the nurses do is to encourage maternal nursing, to weigh the babies and to try to overcome superstitions which are rampant among the colored mothers. Mothers are more and more ready to nurse their babies and to use the cabbage and pork diet less frequently. During the year which has ended we observed 2,482 babies and we had 112 deaths. That's a lower death rate than we had before. The year before it was six and a half per cent, and last year it was four and a half per cent. We feel that our six per cent of lost babies need our care most especially and we hope to reduce this number in the next year's work. We have not been able to do prenatal nursing yet in Washington. We have started in one district. Our own home is situated there and we also have one milk station there for a consultation bureau, and a hospital which gives out-patient service for the lying-in patients. We have divided the district into two sections and assigned two nurses. Each nurse is to carry her cases through the prenatal and lying-in periods and postnatal period. By referring these to the milk station for registration, and visiting the babies frequently, we hope to keep better track of them. These milk station reports have been encouraging. We call it the milk station, but it is more and more a consultation depot. We had 281 babies; 205 were breast-fed and 76 bottle-fed. The babies are brought in for examination and consultation frequently. Two doctors give their services and have been most faithful in attendance; in fact, the work could not have been done if they had not been so faithful. The nurses have made 900 visits, and about 1,000 visits have been made by the babies to the station. We haven't found it necessary to hold out any inducements to the mothers to come, except the permission to

bring their other children also. The work is cooperative. One of the churches gives us its large, comfortable, lighted and heated room for consultation, and another church is subsidizing the milk. With the aid of the Associated Charities and churches we hope to induce the people to pay out money for milk for their babies instead of for beer. Out of the 281 babies we had only nine deaths, which gives a good rate for our milk station. We have become converted to home modifications for bottle babies.

THE WOMAN'S CLINIC AUXILIARY

Mrs. John Hays Hammond: It gives me great pleasure to tell you of the work of The Woman's Clinic Auxiliary. As this is a new organization, less than two months old, I shall have to tell you more of what we are planning and are prepared to do, than of work actually accomplished. The Woman's Clinic Auxiliary is an association of women for the conduct of a clinic for actual and potential mothers along twentieth century ideals. It is a clinic where *patients* instead of medical students are the ones instructed. It is a clinic where the health, comfort, and convenience of the patient are of first consideration. Everything is done to make the patients feel that the clinic is a good place to visit. The waiting room, instead of having bare walls with uninviting benches, is a reception room fitted up as a model living room. There are large easy chairs, shelves filled with good books, current numbers of magazines on the library table, banks of ferns and flowers, a desk with stationery for the use of the "Keep Wells," as our patients are called. For health and the prevention of injury and disease, rather than disease and its cure are the objects of study. Expectant mothers are encouraged to come and get advice how to keep well, how to be mothers of babies possessed with a splendid birth equipment of biological capital.

The Woman's Clinic Auxiliary is a clinic that aims to meet the needs of special classes. First the hours are from 5 to 7 P. M., so that working girls may visit the clinic without loss of time from work. Second, the clinic is attended by *women physicians*, though we have some of the best men in Washington on our consulting staff. Many women prefer to be treated by women. Third, it aims to meet the need of a large class of self-respecting citizens who would not think of applying to the Associated Charities, to the Board of Charities, or to the Physician of the Poor for assistance, yet whose income is such that they are unable to pay the fees of a physician. We charge a fee suited to the income of the pati-

ent and the necessary expenditures. If a patient is unable to pay anything she is treated and furnished medicine free. Fourth, we are undertaking special lines of work which will contribute to the reduction of infant mortality and to the welfare of child and mother.

To accomplish these ends we have organized an out-patient maternity department, are fitting up a room for child hygiene, and shall organize and conduct a school of hygiene and practical nursing.

The out-patient maternity department is under the direction of our superintendent, Dr. Elnora C. Folkmar, who is assisted by a competent staff of ten women physicians and two men consultants. Six of these physicians are responsible in turn for a period of two months for the care of all cases.

The department as at present organized provides for:

1. Course of instruction for expectant mothers at the clinic.
2. Examinations at regular periods of expectant mothers at the clinic.
3. Prenatal care of expectant mothers both at the clinic and at their homes. At least one prenatal visit is made by a staff physician at the home of the patient.
4. Delivery of patient at her home by a competent physician.
5. Post partum care. The physician makes as many visits as are necessary to care for mother and child and to discharge the patient obstetrically cured. Through cooperation with the Instructive Visiting Nurse Association, a nurse makes a daily visit for ten days to care for mother and child.
6. Weekly consultations for mothers and babies.

The out-patient maternity service is at present limited to white women. We are, however, able to refer calls from colored cases to the Woman's Clinic, at 1237 T Street, which can send physicians to care for such cases.

Expenses. This service is rendered without cost to the very poor. But, wherever possible, at least two dollars is collected to pay expense of materials used. Patients able to pay something for the service pay either \$5.00 or \$10.00, depending on income and expenses. One-half of this amount is paid at time of second visit to the clinic or of visit of physician to home of patient, the balance at time of delivery. When over \$5.00 is received, one-half this sum is turned over to the doctor in charge of the case, the other half goes into the out-patient maternity fund.

Hospital facilities. As yet we have no hospital facilities for the care of abnormal cases. These have to be referred to other institutions, where unfortunately, there are no women

on the visiting staff. As patients apply to us because they wish to be attended by *women physicians*, we hope soon to make an agreement with a hospital having good maternity facilities whereby our physicians can attend our cases.

We are planning the organization of a school of hygiene and practical nursing. There is need in Washington for a class of trained attendants of the sick who can be secured for a salary of \$10 to \$12 a week. We shall give a course of one year; six months to be work and study at the clinic, and six months to be spent as student nurses in the homes of the poor able to pay from \$2.00 to \$5.00 a week. The student work would be under the supervision of a graduate nurse. This will be a boon to many a poor woman, especially to maternity cases.

And lastly, we are organizing a child hygiene service. This provides not only for consultations for mothers of young infants, but for the regular observation of the physical and mental development of children as determined by approved tests.

PROVIDENCE HOSPITAL

and

THE MILK COMMITTEE OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA

***Dr. G. Lloyd Magruder:** I would like to add the records of work done by some other institutions along this same line. In South Washington work was started five years ago and has continued without a break. Today there are between 150 and 200 children under observation being properly taken care of by the mothers under instruction. The effort to secure breast-feeding is paramount. Providence Hospital has conducted this work two years and is very active in the work now. I have a letter from the Sister Superior, as follows:

DR. G. L. MAGEUDER:

Dear Doctor—Replying to your communication concerning milk station and infant welfare work at Providence Hospital during 1912 and 1913, we wish to say that we have had unusual success in our Out-Door Obstetrical Department, Children's Dispensary, and the newly-built Day Nursery and Milk Laboratory. While we have been dispensing milk since 1908, averaging 600 feedings monthly during that period, the better facilities of our new Nursery and Milk Laboratory Building, erected last May at a cost of \$10,000, promise well for the extension of this work. All feeding cases are controlled through the Pediatric, Dispensary and Out-Door Obstetrical Departments, and milk is dispensed only on prescription. Pasteurized whole milk is used in modification, with repasteurization of the finished mixture before sealing.

* Died January, 1914.

Some infants were kept on the grounds of the Day Nursery in the open air—during the day—especially the difficult feeding cases. Many atrophic infants were also treated in the pediatric wards of the hospital. I could within 24 hours give you detailed statistics. With best wishes, I am,

Sincerely,

SISTER MARY BERCHMANS, *Pres.*

The United States Government is deeply interested in this problem of improved feeding. I read from the report of the Surgeon-General of the Bureau of Public Health, "Joint letter dated April 4th, 1912, was received from the committee representing the Washington Section of the Women's Welfare Department of the National Civic Federation and the Association for the Prevention of Tuberculosis in the District of Columbia, urging that the study be made by the service in co-operation with the Bureau of Animal Industry and Agriculture as to the effects of pasteurization on the nutritive value of milk, and also the relative value of raw and pasteurized milk as a food for infants and invalids." I would also report a splendid work being done at the Washington Home for Foundlings. When this institution put its babies on pasteurized milk there was an immediate improvement. Out of 110 babies there were only five deaths, they having been fed on pasteurized milk continuously during the past year. The loss during the past year was four out of a total of 77 children. This is the lowest infant mortality that the institution has ever had. By comparison for the last ten years we found that the average has been 21 per year, the highest in 1904, with 43 deaths and the lowest in 1906 with 7 deaths. The average for the five years ending with 1910 was 9.2 deaths per year. During last year there was some diarrhea and the milk was brought to the boiling point. Not one of the five deaths was from diarrheal trouble. Another important movement in Washington is the work of the Committee of the Medical Society of the District of Columbia, which appointed a committee for the study of the milk problem of Washington. The report will be ready this winter. A recommendation was made that no milk should be sold without the recommendation of the Health Department. Congress passed a law authorizing that work, and Washington has the honor of being the first city in the world to require such action, and it has been copied the world over.

ASSOCIATED CHARITIES OF WASHINGTON

Miss Bell: The Associated Charities of the District of Columbia is deeply interested in everything that pertains to in-

fant welfare. Its work for the rehabilitation of families in need brings its district visitors constantly in touch with questions relating to the "saving of the babies."

It stands ready to prevent the expectant mother from overworking by either supplementing the income or adjusting the domestic relations so that others may do her work.

It is willing to supply milk or other nourishing food to the expectant mother if necessary.

It reports all cases of expectant motherhood to special nurses for babies.

It discourages the employment of midwives and is anxious to help in the campaign for the proper lessening and supervision of all midwives.

It stands ready to adjust conditions so that no woman shall need either to part with, or wean her baby on account of poverty. This is sometimes done in cooperation with the Juvenile Court—delinquent husband—sometimes by organizing relief among relatives and friends and other organizations and sometimes by use of moral suasion on the woman herself.

It maintains during the summer months a hospital camp for children under two years of age suffering from intestinal diseases. Not only can the child be cared for in the open air under the care of skilled physicians and nurses, but the mother may go with the baby and learn from actual experience the best method of caring for it. The Associated Charities believes this educational work means much to the community as the trained mother will not only care for this one child and possibly three or four more, but she will also be an influence in her neighborhood.

Over and above this summer work, the Associated Charities is interested in the welfare of unmarried mothers with children, and while it has no special branch or department for this work, its visitors come in touch with a number of such instances every year, and this is the only organization dealing with women and illegitimate children outside of institutions and the work in this line is growing heavier every year. Not that there is more immorality or more traffic in babies, but that the mothers are finding out that there are friends able and willing to help them keep their babies and get them back to a normal position in life. This group of applicants as may be well understood requires a special tact and patience in the kind of treatment afforded them. To persuade the mother to keep the child in the face of critical publicity is no easy task. Yet the saving of the mother morally and the saving of the baby physically often turn upon the success of the

plan. Experience has shown that these girls can be dealt with better as individuals in private homes being fitted for normal life than congregated in homes with a big H. (1) The Associated Charities boards the woman and child when she leaves the hospital too weak to work. (2) Investigates thoroughly whether it is best for her to return to her family and also what she is best fitted for in the line of work. (3) Tries to locate the man who is responsible and bring him to justice. (4) It gets positions for the women where they can have their babies with them. Many times it gets a special training for these girls to increase their efficiency. (5) It furnishes them with a friend.

We need in Washington more stringent regulations regarding the practice in midwifery and the conduct of private boarding homes for babies. We have no law at the present time requiring the licensing of such homes by the Board of Health and the Board of Charities. We believe that all childrens' institutions, particularly those caring for infants, should be subject to the most careful and regular sanitary inspection. The Associated Charities is desirous to see legislation to accomplish the end in view. There is, for example, in this city at the present time an institution condemned by the Charities Endorsement Committee, representing the Board of Trade, the Chamber of Commerce, and the Board of Charities. This institution opens its doors to children and mothers with infants, and is in no sense answerable to any supervisory body. Furthermore, we believe that the present method of registering the births of illegitimate children by which the physician or midwife is excused from reporting the identity of the mother or putative father is against sound public policy and should be corrected. We should like very much to see this Association take up this question of registering in some of its sessions and advise the proper mode of procedure from the point of view of the welfare of the infant.

Thanks to the activity of the Diet Kitchen, the Straus Laboratory, and subsequently the establishment of the milk stations conducted by Mr. George M. Oyster as a private benevolence, modified and pasteurized milk has been available for the mothers in our poorer quarters for several years past. This work, as explained to you, is now being taken over by different agencies, notably the Washington Diet Kitchen through its Georgetown station, and the Settlements. The Associated Charities is distinctly in sympathy with any movement which carries the education of the mother back into the home through

the visiting nurse, and tends to encourage natural rather than artificial feeding. The emphasis placed by this Association upon prenatal work is one with which we are distinctly in sympathy.

THE BABY HOSPITAL CAMP

Dr. Louise Taylor-Jones: Of the different lines of infant welfare work in Washington, this, the Baby Hospital Camp, is the latest to be developed. We have lived through the second summer and feel that we are incorporated in the baby-saving work of our city. The camp is maintained by the Summer Outings Committee of the Associated Charities and cooperates with all societies doing infant welfare work.

It is situated six miles directly north of here in Rock Creek Park. It is elevated, surrounded by trees and altogether an ideal spot. The house is old, but with the addition of several porches, it is all that could be desired for the work at present. One effective feature is the screening, for not only is every part of the building and porches screened, but each part is screened from the other parts, thus preventing the fly that may be so unfortunate as to enter the front hallway from reaching the babies' porch.

After twenty-four hours or more of isolation, the babies live on the porches day and night. The nursery is used only for bathing the babies and for their belongings, provision being made for individual face towels, bath towels, clothes, soap and thermometers. All are carefully labelled and have their own special places. The Diet Kitchen is in charge of a graduate nurse, who modifies the milk according to the physician's prescription.

In addition to the actual work of trying to save the babies' lives and making them well, an effort is made to do that which may prove more far-reaching in its good, namely, the training of the mothers. The hope is to give them a knowledge which will enable them to keep their babies well after they get home and keep well also other babies that may come later. In developing the plan it seemed best to introduce the mothers to one thing at a time; first, to have the baby on the babies' porch, the mothers doing only certain things for the baby at certain times under supervision. Gradually she is given more duties in connection with the baby and his care until finally, as he recovers, his crib is placed on the porch with her bed and she has full responsibility—under the nurse's supervision.

By this method we can get the mothers much more readily into good habits with the baby. The mothers always improve much in health too, a tribute to the fresh air and excellent food, and the aim is to have them develop in character, as well. At present the accommodations allow for 13 babies and 8 mothers.

**WOMEN'S WELFARE DEPARTMENT OF THE NATIONAL CIVIC
FEDERATION**

Mrs. Archibald Hopkins: My subject makes the connection between infant mortality and the housing problem, which is the paramount question now before the Welfare Department of the National Civic Federation. Our Housing Committee found conditions in the alleys absolutely unfit for habitation. In these alleys down in Foggy Bottom the death rate of the children used to be fifty per cent higher than the death rate on the adjacent street, with only a little brick shanty between them. The death rate was one out of every three. Now it is one out of every four born in the alley. Some one said it was just as well because those children would grow up to be criminals anyway if they lived. But that is not the point of view accepted by the Women's Department of the Civic Federation. We found that nothing could be done but to wipe out the alleys, and after two years of hard work we have almost arrived. That is, we have all the statistics and we have now a bill drawn which satisfies the Commissioners and the Health Officer and the Building Inspector and has gone to the President and received his approval, with some slight changes. Then it goes to the two committees of the Senate and House on the District of Columbia, and it will then go to Congress. We are greatly indebted to Mrs. Wilson, wife of our President, for her personally conducted tours. Being asked to go by the wife of the President, in the White House motor added a soothing influence. Many realized that they had no idea of the conditions, although they had lived here many years; and while they had seen pictures and heard reformers who tried to arouse their attention from time to time, the thing had always quieted down again and the alleys went on as they were.

The question is asked, "Since when has our beautiful city become such a terrible sink hole of iniquity and horror?" I say it has always been so. We are very proud of what has been done by the Washington Sanitary Housing Company, which owns 220 house in the southwest of the city, which are exclusively built for colored people. These houses

have porches and good plumbing, and they rent from \$7.50 to \$12.50 a month. This enables the company to pay the investors five per cent and leaves them a sinking fund which enables them to have two per cent against loss and two per cent sinking fund. We handle that property, not like the ordinary agent who goes into a house and yells—"Rent"—and when the woman hasn't got the rent asks her to leave. No, a very persuasive charity worker goes and asks why the rent is not paid. If it is sickness she does what is necessary. If it is contagion the patient is removed to a hospital. If the husband is out of work, work is provided, and if he is drunk we sober him up. Our work everywhere is wonderfully helped by the District Nurse Association. We work entirely with them. Very few people know how much work has been done since the formation of their society. They don't blow their own horn, so they need some one else to do it for them. Since 1908 they have worked in all weathers and done an immense amount of work. For five months they have had a baby nurse. We should always speak of them as the instructing visiting nurse association, for the excellent work which they do, and did before any one knew of it, and in face of obstacles of raising money and the prejudice that there is about every new undertaking. One does not mind working, but to have to beg and beg for a little money to pay for good work gets on your nerves. People think they are doing so much for you when they give a trifle, and you are after all doing their work. These nurses are not ours. The welfare work is not ours, and surely this alley work is not ours. I feel that those of you who hold up our hands and strengthen us in this work will do more to break down the death rate and to help the baby question than in any other way. We have come to feel that the housing question is after all the main thing in all the work among the poor. Provide decent housing where people can live decently, and the death rate will be reduced. Furthermore, it is no use to talk about people leading good lives who have to live under such impossible conditions that the rudiments of decency cannot be carried out because there is no place to do it. Now we ask you to have a kindly word for our work in the alleys on the housing question, and as chairman of the Federation I invite you to come tomorrow to see what we have done and what we are trying to do to improve the conditions so that one out of four babies shall not die, but live because of improved housing conditions.

THE INFANT WELFARE STATION OF THE WASHINGTON DIET
KITCHEN ASSOCIATION

Miss Mary Gwynn: The Washington Diet Kitchen Association, a philanthropic organization which has for years carried on a charity of providing proper and sufficient nourishment in cases of illness where the circumstances of the patient were such as to make it impossible to secure the same, in the spring of the present year decided to broaden its field of endeavor. After considerable thought and discussion had been given to the matter it was agreed that an infant welfare station offered a very promising project. Therefore, in May the Infant Welfare Station of the Washington Diet Kitchen Association, located at 1322 28th St., northwest, was opened.

When the location had been definitely decided upon, with a view to accomplishing the greatest amount of good in the field covered, all social and charitable organizations and physicians whose activities centered in the territory were requested to cooperate with the station.

The first infant was registered on the 27th day of May, 1913. Since that date the work of the station has gradually increased until at the present time 97 infants have been received at the station.

The station, which has in attendance both a physician and a nurse, is open from 9 to 12 each morning. This affords opportunity for a clinic for the children brought to the station and also permits of instruction of the mothers in the modification of milk.

Four physicians are at present on the staff and their days of attendance are so arranged that at least one will be present each day.

The graduate nurse is at the station to receive cases and to give individual instruction during the morning hours whereas in the afternoon her time is devoted to visiting the homes of children registered at the station and cases referred to the station by other organizations. Milk and eggs are both distributed at the station and in many cases where the infants are not brought to the station the milk is delivered to the home. The advantage of permitting the nurse the afternoon to visit the homes is manifest. Not only is she afforded the opportunity of being constantly in touch with the infants and the surroundings under which they spend most of their time and thus placed in a position to offer suggestions and correct conditions in the home bearing directly upon their

hygiene and welfare, but she is brought in personal contact with the home and necessarily carries into its life the spirit of social uplift.

As to the present work of the station some idea may be gained from the following notes taken from the report for the past month.

Number of visits to the station.....	207
Number of visits to homes of babies registered at the station	85
Number of visits to referred cases.....	22
Amount of milk distributed daily.....	20 to 28 quarts

This station is the first agency in the District to teach home modification, using individual families as units for instruction. Many predicted failure in the matter of instruction in home modification, believing our large colored population made local conditions peculiarly unfavorable. This, however, was found to be mistaken as the negroes are natural cooks and it was only necessary to teach them the reason for absolute cleanliness in preparing the infant milk to have apt pupils. There were some few discouraging cases, but in numbers they were a decided minority.

The work of the station is extending in ways unthought of at the time of its conception, new avenues of usefulness being developed almost daily. A young ladies' auxiliary has been formed, one member of which visits and teaches a seven-year-old boy who has been paralyzed for three years and unable to attend school. Other members of the auxiliary are doing social service visiting to the homes.

The latest venture of the station is to be a better babies' contest, the first ever held in Washington. This contest is not to be the useless type of beauty contest, but instead is to be based upon a scientific examination as to physical and mental development. As a means of arousing the interest of parents and the community in general in the physical and mental conditions of infants, this better babies' contest has been undertaken. At the time of examination opportunity is also afforded to bring to the attention of parents any defects noted, however slight, so that immediate steps may be taken for the correction of the same.

The Baby Welfare Station is open daily from ten to twelve in the morning and all who are interested in this work are cordially invited to visit the station.

THE MONDAY EVENING CLUB

The Chairman: We will next hear from the Monday Evening Club, whose representative is Mr. Charles F. Nesbit, its new president.

Mr. Charles F. Nesbit: Some one asked what the Monday Evening Club was. If I were not one of its officials, and if Dr. Van Schaick had not been connected with it, I would say it's the Who's Who in the Kingdom of God in the City of Washington. It is the social service committee of charity workers who get together to study these problems. Its principal function is to enlighten the people of Washington through our meetings and through the press on the present great problems that affect the civic life of Washington and other cities. All such work as you are taking up has our heartiest approval. There is a large amount of publicity given it through our club. Dr. Edward T. Devine, of New York, predicted six or seven years ago that America was on the eve of the greatest religious awakening it had ever known. He called it a religious revival. Some one asked him why he made such a statement, since it was believed that the church was losing ground everywhere. He said he "based it on the fact that the churches are beginning to take an interest in the death rate." He said that that,—to his mind—was infallible proof that we were on the eve of a tremendous religious awakening. We are all taking an interest in the death rate and beginning to understand what it means, and what such losses in infant life mean to the future of our country. I can only give you a word of greeting and give you godspeed on part of the Monday Evening Club.

CENTRAL MILK COMMITTEE—NEIGHBORHOOD HOUSE

Dr. W. J. French: I wish to call the attention of this Association to an organization that has recently come into existence in Southeast and Southwest Washington. We call it the Central Milk Committee. When Mr. Oyster ceased giving milk we found it necessary to do something for the milk stations. We formed a committee and connected with it are the visiting nurses and the milk stations. Each station pays a stated sum each month, and this with the collections for the milk pays the milk bill. If there is a deficit the committee will appeal to the general public for aid. Three stations have been in existence for some time and are doing excellent work. The one at Neighborhood House has been in existence since April, 1908,

without a break. We have handled about 2,000 babies, 1,500 of these at the Neighborhood House. We are handling the milk for almost all of the children in Southwest Washington, except those that are cared for by Providence Hospital. The death rate at the station at Neighborhood House has never been more than $4\frac{1}{2}$ per cent, and it has been down to 2 per cent. The other stations make as favorable a showing. The milk station at Neighborhood House was the first ever established in this city to dispense modified milk to babies.

GENERAL SESSION

Monday Afternoon, November 17, 1914 (Continued)

PART II.

TOPIC:

AN IDEAL PLAN FOR A COMMUNITY'S BABY-SAVING ACTIVITIES

REV. DR. JOHN VAN SCHAICK, Jr., of Washington,
Presiding

THE DEPARTMENT OF HEALTH

Dr. C. E. Ford, Cleveland: Every intelligent community now realizes that the protection of the health of the child represents the first duty of any Department of Health, because it is conserving the greatest national asset, namely, the child—the future father and mother of the nation.

A Bureau of Child Hygiene in a Municipal Department of Health must, if it is desired that the department consider every phase of the protection of child life, be built upon a very broad basis. The factors which enter into the production and the prevention of illness in children are so numerous that their presentation may give the impression that if the establishment of a Department of Child Hygiene were to include these various activities would practically not be feasible today. I personally, however, feel very strongly that owing to the intimate cooperation of the various medical charities, the hospitals, and the universities, with Boards of Health, that there is every reason to believe that the opportunity now presents for developing efficient Departments of Child Hygiene in Boards of Health upon the broad lines to be stated below.

According to my conception, the Department of Child Hygiene ought, as far as possible, to engage in or control every activity that is necessary to guard the physical welfare of the child from birth or, better still, before birth, by giving attention to the mother-to-be, until the age of sixteen.

The sub-divisions into which I should divide the activities of such a Department are as follows:

- I. Prevention of blindness.
- II. Reduction of infant mortality—
 - Visiting Nurses
 - Babies' Dispensary and Hospital
 - Maternities and Foundlings
 - Medical Profession
 - Social Service
 - Production of Milk; Distribution
- III. Supervision of the so-called infant boarding homes and nurseries.
- IV. Supervision of institutions, including orphan asylums, hospitals and dispensaries.
- V. Physical examination and supervision of children under sixteen years of age, applying for mercantile certificates.
- VI. Medical supervision of children at schools and kindergartens.
- VII. Prenatal care and maternity.

These sub-divisions of the Department of Child Hygiene have been chosen for practical reasons of organization. Theoretically, the inspection of boarding homes and nurseries would have as its first object, the reduction of infant mortality, and, therefore, would theoretically come under the head of that sub-division. Practically, however, it would soon be recognized that these activities would represent each in themselves, sufficient work for any one individual responsible for carrying out the duties that devolve upon an officer holding such position. From the description of the duties of each sub-division you will be able to see what is included under the various headings.

I. THE PREVENTION OF BLINDNESS

Although the economic loss to the nation by diseases of the eye causing blindness, is less in amount than that due to the so-called causes of infant mortality, there is, nevertheless, no other work that should require more earnest attention of a Department of Child Hygiene than that which has as its object, the prevention of blindness. It is true that sentiment should never be considered when the welfare of the community is being discussed, but I believe that there is no one, who has any heart, who would not be touched beyond all measure of expression by the sight of a well-developed boy or girl who has lost vision unnecessarily. The fact that nearly every one of these cases can be prevented, is, of course, free from sentiment, and it adds weight to the former. So I have placed as the first duty of the Department of Child Hygiene, the prevention of blindness.

This sub-division would be engaged in the following activities:

The immediate care of every case of eye disease reported to the Board of Health by a nurse doing this work, either under the direction of the family physician, if the parents are in a position to afford one, or if not, under the direction of a physician especially detailed to the work. This would include the examination of the discharge by men qualified to do so, in order to ascertain whether the disease be contagious. In case the former be true it would devolve upon the physician and nurse to consider seriously whether it would not be for the best interests of the child and family that the infant be sent to a hospital.

Inasmuch as most of the reported contagious eye diseases in infants occur in cases in charge of midwives, it would seem rational to entrust this sub-division of the Department of Child Hygiene with the supervision and control of midwives. That is, the nurse and physician would at all times be bent upon ascertaining whether or not the midwife is practicing according to law. In case the midwife is not within the law, it would be their duty to obtain the necessary evidence to make it possible to have her prosecuted according to the law, and to see that this evidence is placed in the proper hands. It is understood that if any physician is found violating the law that the facts regarding his case be also referred to the proper authorities, and not to drop the case until the officials, whose duty it is to prosecute, actually prosecute.

"Practicing according to the law" would include the question of licenses and certificates, of proper reporting of births for state registration purposes, of reporting at the proper time the appearance of the eye symptoms, and of the instituting the proper care and treatment to avoid the charge of malpractice.

II. THE REDUCTION OF INFANT MORTALITY

The enormous death rate among infants represents the greatest economic loss that any civilized nation sustains. It is not necessary for me to call your attention to the numerous activities exerted by foreign countries with the hope of checking this important deficit. You are also aware that the Departments of Health of various cities of our own country, especially that of New York, are spending large sums of money in the organization of work whose object is to reduce infant mortality. I wish, however, to impress you with this fact,

that by scientifically and methodically working for the reduction of infant mortality, one not only saves the child from death by bad food and too much heat, but also from diseases of latter life, especially tuberculosis, by making the human body at its very appearance upon this earth as resistant to untoward influences as it is possible. In other words, the activities carried on to reduce infant mortality represent, at the same time, the greatest preventive measure that is exerted today, to check the spread of tuberculosis, with the possible exception of isolating the so-called "open cases."

This sub-division should include the following activities:

1. The control of the proper registration of births, and in case the law is not sufficient, the bringing of influences to bear upon the proper authorities to remedy such law or to enact a new law. It may be stated at this point that a change of the length of time of ten days after birth to make a report, to three days would give the agencies, working to educate the mothers in the proper nursing of their infants, a better opportunity for good results.

2. Prophylactic Babies' Dispensaries. By these are not meant simply the equipment and the records, but physicians and nurses trained in this special work. The physical examination of the mother and child, by the physician, must form the basis for action. The nurse is the physician's right hand, who not only aids him in the dispensary, but goes as well into the homes to demonstrate to the mother how to carry out the physician's directions, to encourage her in doing this, and to become the friend of the entire family with the sole object in view of not only caring for the infant in a preventive way, but for the entire family as well. She must therefore also learn for her own benefit and also for that of the physician, who is to intelligently advise her, as to the material circumstances of the family and the hygienic condition of the home and its surroundings.

Inasmuch as the nurse continues to visit the home until the infant has reached the age of fifteen months (and this time should be lengthened) and further as babies are constantly present in the homes that need the help most, a Babies' Dispensary nurse has a greater opportunity of applying preventive medicine to the family as a whole, than any other agency, medical or sociological.

So a Prophylactic Babies' Dispensary must recognize the various factors in a child's surroundings that might harm it, and know the best means to remedy these evils, and further to make the child more resistant. The question of housing

with its sub-divisions of lighting, ventilation, cleanliness, air space, etc., and the question of the temperature and humidity of the atmosphere within the house and without, are important points to be considered. The keynote to the reduction of infant mortality rests mainly in the proper nourishment of the child, and especially in the nursing of the child by its own mother. The first object of the Prophylactic Babies' Dispensaries must be to have mothers nurse their children properly, and for this reason an early birth registration and an intimate cooperation between the midwives and the physician confining mothers, is essential.

Inasmuch as it is difficult to educate mothers, especially those who have household duties, to see that it is for their own good that they learn how to keep their baby well, it is necessary that this education be made as accessible and as easy to them as possible, and this means two things, that the distance from the house to the center of instruction, that is, the Prophylactic Dispensary, and also the time spent at this Prophylactic Dispensary, be as short as is compatible with good work. It is, therefore, much to be desired that instead of having one large dispensary for the entire city, it is preferred to have many so-called branch dispensaries on a small scale in a limited district. In order to cover the city thoroughly it would be necessary to have, I should say, about forty such Prophylactic Babies' Dispensaries, although we have but fifteen for 65,000 inhabitants—one for every 15,000 to 20,000 inhabitants.

3. The production, preparation and distribution of milk for children whose parents are unable to pay for certified milk and which children, according to the decision of a dispensary physician or a family physician who is directing the preparation of the food, are in need of *artificial food*.

Inasmuch as the needs of the Department of Child Hygiene in the other activities that have been or will be mentioned in this discussion, are so great and will entail such a large expenditure of money, it is my belief this work ought to be carried out by private charity at the outset or until the time comes when appropriations to this department will be sufficiently great to enable it to assume this responsibility.

There is, however, one step in this special sub-division regarding milk that ought to be made immediately, and that is, the encouragement by this department through the Board of Health of the establishment of a municipal milk farm.

It may be idealistic to require a pathogenic bacteria free milk for everyone, but it is absolutely necessary for the in-

infants and the younger child. How great a part dirty milk plays in the production of disease and ensuing deaths is not definitely known, but it is nevertheless an important factor among the array of infant killers and that its elimination is a thing well worth striving for. A clean wholesome milk is roughly a milk that is obtained from healthy cows in a clean manner by healthy men and so handled as to prevent an excess of ten thousand bacteria per cc. Incidentally, this latter statement is rather absurd in that the character of the bacteria is not specifically stated. A necessary requisite in keeping the number of bacteria as low as this is the important and efficient cooling immediately after milking, and the further maintenance of a low temperature in clean milk cans or containers until it is to be used for the preparation of the infants' food in the home or in the laboratory. Another requirement necessary of any milk to be regarded as "wholesome" is freedom from the tubercle bacillus, be they human or bovine. In order to be certain that a given milk is free from the bovine tubercle bacillus, it is necessary that a farm be large enough to enable the producer to raise his own herd. It is further necessary that he have land sufficient to make it possible to isolate those cattle with tuberculosis, those positively free from tuberculosis, those of which there is still doubt as to the presence or absence of tuberculosis, and last, but not the least important, the calves that are being raised to maintain the numerical strength of the herd. The farmer must be in a position to develop this plan in order to correctly make use of the tuberculin test, and also to prevent reinfection of his tuberculosis free herd by such cows which do not react to the tuberculin test and which may nevertheless be infected with tuberculosis. Otherwise, his expensive efforts are absolutely futile and would represent to him a large loss of time and money.

From the above stated facts it becomes very clear that a small farmer cannot carry out the plan for want of capital. So it appears that the only solution of the problem would be that either companies of large capital or the government (municipal or otherwise) must take over the production of milk. From the standpoint of a health official I favor municipal pasteurization.

It is well known that the simple boiling of milk removes the danger of infection with the tubercle bacilli and we have, therefore, a very simple measure for the avoidance of this source of disease. True it is there is still some doubt as to the dangerous effects upon the organism of the infant by boiling

milk, but it can be unreservedly stated that these cases are rare. However, it is no more than right that the few infants who can not stand boiled milk be enabled to secure a raw milk that embodies no harm to them. So if it would be possible to develop the plan mentioned for the production of raw milk, absolutely free of tubercle bacteria, the difficulties could be met by simply producing a clean milk and having the milk boiled when the food is prepared for the infant.

The cost of production of clean milk is more than that of common milk. It costs about twelve cents a quart delivered. Of course, this varies in various cities—depending upon many factors. Twelve cents per quart is the price that but few of our citizens can afford to pay.

In order that the infants of parents who cannot afford to buy this milk at this price may get what is essential for their normal and healthful development it is necessary that someone pay the difference between the price they can pay and the actual cost of the milk. Up to this time private or philanthropic institutions have carried this burden, but the time is ripe when this tax should be carried by all the people. Hence, it is the plain duty of the city to produce and deliver a pure milk for infant feeding.

The City of Cleveland has now a herd of one hundred and eighty cows, about eighty of which are now producing from one hundred and ninety to two hundred gallons of milk per day. This is supplied to institutions, and later, with the development of the herd, it is the purpose to make available milk for the purpose of infant feeding. Of course, this work is not all new. The City of Berlin has a very large farm colony and uses this, among other things, to produce the amount of milk required by it for its own infant hospitals, infant asylums and dispensaries.

4. Instructions of the girls at school in infant hygiene to be given as a part of the regular curriculum. The establishment of such a course in the schools would represent the highest type of prevention of infant mortality, because it would instill into the mothers of the next generation a responsibility that would, if efficiently developed, make the educational work of the present Prophylactic Babies' Dispensaries unnecessary. So besides being the proper thing to do, it would be the most economical in the end. This is a duty of the Board of Education, but inasmuch as the teachers of today have not been trained in this subject, it is much to be desired that they acquire this knowledge, and while they are pre-

paring, the Board of Health or some philanthropic organization share responsibility with the Board of Education.

5. *Improvement of housing conditions.* Reference to this subject has been made and it is placed under a separate heading to emphasize its importance. As stated above, this activity of the Department of Child Hygiene should resolve itself into intimate cooperation with the "Department of Housing" by referring poor housing conditions to that Department for correction.

Here again a nurse doing so-called "infant mortality work" has the opportunity of being an active reporting agent to the "Department of Housing."

6. The prevention of neglect of children by their parents. This activity would utilize the power vested in the Board of Health to force a parent, who for some reason or other neglects the physical condition of his child, to assume his responsibility, or in case he does not, to assume it for him until the child has recovered, or the parent has evidenced the desire to do his duty. It may be stated that such an activity would not be limited to infants, but would apply to other children as well, and would, therefore, come under the other divisions of the Department's work.

7. Cooperation with other departments of the municipal governments, with the state, federal and foreign governments, and with the local, state, national, and international philanthropic organizations, in every manner that would mean an improvement of the child, *directly or indirectly, through a betterment of its condition of living.*

III. SUPERVISION OF THE SO-CALLED INFANT BOARDING HOMES AND NURSERIES

By the so-called "infant boarding homes" are meant institutions in charge of some private individual, usually a widow or a "practical" nurse, where more than two infants are kept, and for whose care either the parents or some association pays from \$2.00 to \$3.00 per week. The individuals operating such homes do this as a means of livelihood, and therefore, desire, as a rule, to have more than two, and if possible six to ten babies in their home. It is well known that the infants in such boarding homes receive, as a rule, inadequate care, not because the person operating this home desires to wilfully harm the child, but because she cannot for the amount paid

her, afford to give the child the supervision and attention that is necessary to keep it well. This service would include the supervision of the child's feeding by a competent physician, as well as the care of the child during illness. For this reason in various parts of this country, and also in foreign countries, especially in Hungary, where the state assumes this great responsibility in a most efficient manner, it has been found that many of these disadvantages disappear when but one child is placed in a home.

The Department of Child Hygiene should establish and have at hand a sufficiently large list of homes that have been investigated as to hygiene and sanitation, and as to the health, character, and trustworthiness of the family, and have been found acceptable. This would place the Department of Child Hygiene in a position to recommend homes to any organization or individual, and to include in the contract with the person in charge of the home, the requirement that as soon as an infant is accepted, that infant be under medical supervision of the Department of Child Hygiene, requiring the foster-mother to present her foster-child at regular intervals at the Prophylactic Babies' Dispensary located in her district. In this manner, good use could be made of the Prophylactic Babies' Dispensaries, and there never need be doubt as to the quality of the food given these infants by reason of such supervision. It would, however, be necessary to place one nurse in charge of this work, not only to be responsible together with the respective dispensary nurse, for the health of the child, but also to take complaints from any source and investigate these complaints, and further to find and investigate new homes and add them to the list, in order that a reserve number may always be available. This plan would make it possible to have not only boarding homes for one child on artificial feeding, but also "infant boarding homes" for one child with wet nursing. For the physical examination of the wet nurses and the infants to be wet nursed, and also for the inspection of nurseries, it would be well to add to the Department the services of a physician and nurse who would be responsible for this activity.

I may say at this point that the Department of Child Hygiene has a list of homes and is in conjunction with the Humane Society organizing this work.

IV. Under this division should be included the supervision of nurseries. And under the supervision of the nurseries, I should like to include the regular daily visit to each nursery,

and the inspection of the children there. The Day Nursery and Free Kindergarten Association does this work under supervision in Cleveland.

IV. SUPERVISION OF INSTITUTIONS, INCLUDING ORPHAN ASYLUMS, HOSPITALS AND DISPENSARIES

The duty of this division of the Department of Child Hygiene would be to see that the rules of the Board of Health and the state law regarding the hygienic conditions of these institutions be enforced. The greatest fault with these institutions, as a rule, is overcrowding, and in the case of asylums, the very lax manner of admittance, and after admittance, of isolation. Besides seeing that the letter of the law is obeyed, it would devolve upon this division of the Department of Child Hygiene to suggest any improvements to these organizations that will benefit the children harbored there, and that can be arranged for at a reasonable expense, and also to call the attention of the proper authorities to the need of any new law or any amendment to old laws that might be necessary to establish proper conditions for the children.

THE RELATION OF BABY-SAVING ACTIVITIES TO THE DEPARTMENT OF HEALTH AND TO EACH OTHER

Dr. S. Josephine Baker, New York: At our general meeting the problem of infant mortality was presented to us from two points of view, one was that it is a community problem, and the other that it is an individual problem. I think those of us who have worked in the prevention of infant mortality feel that, in the last analysis, each mother must save her own baby. To that extent it is an individual problem, but each mother has not the power to save her own baby unless she is given some assistance, that is, there are many features of baby care that she cannot get for herself, such as the problem of clean milk, proper housing, pure water, etc., so that in this respect we must consider it a community problem. In so far as it is a community problem I believe that the work of prevention of infant mortality should be undertaken by the health authorities of the community. As we all know, it is an exceedingly complex problem and so far there has been no health department or bureau of child hygiene, even under municipal control, that could look out for all aspects of this many-sided question, so private philanthropy has undertaken many features of this work to show mothers the way in which they may properly take care of their children and afford them the means to do so. These private philanthropic agencies have grown up in most communities quite independent of each other and have come in time to encroach upon each other's activities, duplicating their efforts and often causing an immense amount of waste effort. I believe that, primarily, the responsibility for the reduction of infant mortality is a community problem for the Department of Health, but in many of our towns and even cities our boards of health are notoriously lax and uninterested in this problem and therefore the private or semi-private philanthropic and social service agencies are the starting points from which public opinion must be aroused. I do not believe that other organizations should do the work which the Department of Health can do, but there are, as I have stated, many features of this work which seem to be properly placed under semi-private control. Where duplication of effort is found there is need to get together and to organize so that the

greatest good may result to the babies from a well-planned cooperative effort. This situation of having societies duplicating effort was a common thing in New York City several years ago, and from the point of view of efficiency it was an extremely serious situation. The individual societies spent large amounts of money and so did the Department of Health, yet their efforts so overlapped that it was not uncommon to have six or seven nurses making visits to one family. Many societies were not on friendly terms with others; there seemed to be a feeling that if any cooperative effort were made some of the societies would take undue credit for whatever results might be obtained, leaving the other societies without proper credit for their work, so that no one organization was willing to take the initiative in a cooperative scheme. The Department of Health, therefore, thought that it would try to achieve this result, slowly and systematically. First, we asked representatives of the milk stations in the city to come together and after some preliminary conferences an Association of Infants' Milk Stations was formed. The city was districted so that each agency had control of certain districts and there was no overlapping of territory or duplication of work. A uniform system of record-keeping was instituted and yet the individuality of each milk station organization was left undisturbed. This cooperative effort was so effective that at the end of the year I suggested to the milk station association that we further extend it by asking all of the agencies of the city who were interested in baby welfare work to join with us in a larger federation. A general meeting was held, representatives from all of the organizations attended, and we now have what is known as the Babies' Welfare Association, which is simply a cooperative federation of about eighty agencies interested in baby welfare work. I have not time to give in detail the organization of this association at the present time, but I do want to say that the methods of work are not interfered with. No organization loses its identity or has its methods of work changed in any particular, but some remarkable results in a cooperative way have been achieved. For instance, formerly when a nurse or social worker wished to enter a baby in a hospital she sometimes had to call up one hospital after another until the greater part of a day had been taken up before accommodations could be secured. Now we have a central office with an executive secretary who is regularly informed by the sub-committee on hospitals of the association as to the number of available beds. If any nurse wishes to place a baby in a hospital she calls up the execu-

tive secretary, giving the baby's address. Within fifteen minutes the executive secretary replies, telling her just where the baby will be received and in less than half an hour the baby is in a hospital ward. The same sort of cooperation has been achieved in regard to vacations for babies by the sub-committee on outings. The sub-committee on social service work planned a system of relief that is prompt and adequate and similar statements can be made regarding all of the sub-committees. Our bookkeeping on infant mortality is more correct than it has ever been. We have shown just what may be done by organized effort and I believe that our example can be followed by any community, large or small. It would seem that the Department of Health should be the central agency and take the initiative in this form of organized co-operative work because it is the one agency that can officially represent the entire community spirit and life. I believe that this cooperative movement has had a very marked effect upon the encouraging reduction of infant mortality which we have had in New York City during the last four or five years.

THE IDEAL VISITING NURSING

Miss M. Adelaide Nutting, New York: Under an ideal form of government, I suppose our attitude toward disease would be about what it now is toward illiteracy. We should be unable to tolerate it. Health would be looked upon as the right of the individual which it is the first duty of the state to protect, to promote and in a measure to compel. Then, I presume, this high function of the state will not, in any of its various aspects, be left to the chances of private philanthropy, to individual enterprise or to the hazards of individual competition, and any state which desires to endure must look upon the health of its children as its highest charge, over which it exercises constant and profound solicitude. For this purpose it will use every agency and instrument at its command, organizing, directing and distributing them to cover its inhabited territory. It will reach as surely and effectively into remote country districts as into crowded centers of population, for, from the point of view of the state, the health of all districts is equally important.

Among the many agencies at the disposal of the state for this purpose there will be none, I think, of more definite and peculiar value, none more widely utilized, none more essential to a good public health service than its staff of public health nurses.

An ideal visiting nursing service is, therefore, in my opinion, a state public health nursing service. Such a body will, of course, apply itself to that need of the community which is after careful study found to be most urgent, and the protection of infant life must inevitably, I think, form a large share of its work. Just as the great proportion of teachers in the service of education are occupied in the primary and elementary schools, guarding and directing the mental growth of young children, so probably will a very large proportion of our visiting nurses be occupied in guarding the health of mothers, infants and young children, working close down toward the beginnings of life when the infant and the child are measuring their feeble resources against whatever influences, injurious or destructive, may surround them. A state nursing service must require of its workers that they be trained and expert in this branch of work.

Now just as we are recognizing that our work for the prevention of tuberculosis must begin long before there is any sign of that disease, so in preventing infant mortality we must begin as far back as it is practicable at present to carry our efforts, and that will be with the young expectant mother in the early stages of pregnancy where the conditions under which she lives and works are hourly helping forward or hindering the healthy growth of the coming child.

The nurse is fortunate in having no barriers to break down to gain entrance to homes and knowledge of family problems. As desirable measures for today for utilizing as fully as possible the resources of visiting nurses in preventive infant mortality, I suppose the following suggestions might prove practicable.

The employment of visiting nurses in connection with maternity dispensaries, to watch over expectant mothers and to give such prenatal instruction as may be needed, and the employment of *the same* nurses to visit the mothers after confinement to continue the same oversight, instruction and care just as long as may be necessary. (I cannot think well of a system which provides such intense specialization as prenatal and post-partum nurses.) In the same way, just as far as practicable, I would like to see young mothers, early discharged from maternity wards, followed up in their homes by visiting nurses to continue oversight over the child as long as there is any cause for it.

I would provide for inspection and supervision by visiting nurses of all places where dependent infants are housed, whether in individual homes, day nurseries or foundling

asylums, or any other institutions where nurses are not directly in charge. And even these will need probably a certain supervision.

The regular visiting nurse in her daily rounds, the school nurse in hers, both have exceptional opportunities for giving instruction to young mothers in their homes, both before and after their babies are born, and the importance of this aspect of their work should be constantly urged.

In addition to such informal instruction, the services of visiting nurses should be constantly utilized in giving more formal and definite teaching in the care of infants and in the responsibilities of young mothers to clubs of working girls, to older school children and to young mothers. There should be in every visiting nurse's association a kind of educational division in which one or more nurses give less time to actual nursing, and more time to such instruction, for to be really valuable such teaching takes time and thought and special preparation on the part of the one who would teach. Small neighborhood exhibits might form a part of such teaching.

Half a century of experience of visiting nurses in England seems to point to the importance, if not to the actual necessity of special maternity training for visiting nurses in rural districts and small communities with scattered population. In a strikingly large number of instances the visiting nurse has been called upon to actually deliver the mother, because the doctor did not arrive in time, and in the emergency the nurse was there and the only available help. There is some evidence to show that the visiting nurse in this country has often the same problems to meet, and if this is true, she should be adequately prepared to meet it.

I suppose that continuous education in one form or another is the great agency which the state will employ for the improvement of health, and the ability to teach effectively will be the most potent weapon which the nurse can carry in her warfare against infant mortality. She will, it is true, work for almost invisible results, and the more successful her work the less will it be seen.

THE PLACE OF THE MATERNITY HOSPITAL IN THE IDEAL PLAN

Dr. J. Whitridge Williams, Baltimore: In an ideal community, I do not think that one should speak of a maternity hospital, for in such a community things should be designated correctly, and the English term is lying-in or obstetrical hospital.

I must confess to a great prejudice against the former term.

Of course, it comes from *Maternité*, which is good French, but in this country it is employed as an euphemistic substitute for the good old English designation, and is reminiscent of the time when child-bearing and everything connected with it was considered more or less indecent and referred to with bated breath.

I shall, however, go a step further and state that I believe that what is needed in this country is not mere lying-in hospitals, but institutions based upon much broader lines, which may be designated as woman's clinics. In the former, care is provided for the woman in childbirth and for her newly-born child, but no matter how well it is equipped or how excellently administered, its prime function must be the mere physical care of the patients with incidental education of male and female midwives.

In this country, and to some extent in Great Britain as well, obstetrics has suffered greatly from the so-called maternity hospital, with its narrow ideals and its restricted opportunities. Doubtless, most of the non-medical members of this audience believe that American women are the recipients of the most expert obstetrical care in the world, and that obstetrics has attained its highest development in this country. I am here to tell you that such is not the case; and while I have no desire to deny that there are many expert obstetricians, I have no hesitation in stating that in this country obstetrics is the most poorly taught of all the major branches of medicine, and that the average practitioner leaves the medical school very poorly equipped to carry on this important part of his work.

This is due to no fault of his own, but is attributable to the peculiar development of medical education in this country. Until recently the medical schools were entirely in private hands and not under the control of strong universities. Any one was considered good enough to be made a professor of obstetrics, and was very fortunate if charitable persons made it possible for him to direct a small lying-in hospital, where he might enlarge his own experience and give meagre instruction to his students. Even now, after the stronger schools have come under the nominal or actual control of the universities, somewhat similar conditions prevail, and at the moment I know of only one school in this country which possesses adequate facilities for the instruction of its students.

As the professors are usually poorly paid, they are obliged to devote the greater part of their energy to making a living by private practice, and necessarily regard the conduct of the small lying-in hospital and training of students as a very

secondary consideration. Faulty training, meagre facilities and lack of time make it impossible for them to investigate the fundamental problems of the subject, with the result that our professors are the least productive in the world and have contributed practically nothing to the scientific side of their profession. I am sure that you will be surprised when I tell you that I know of only two Americans who have made fundamental contributions to the subject and neither of them were obstetrical teachers.

In my opinion this deplorable condition of affairs will not be overcome until each of our large medical schools is provided with a suitably equipped woman's clinic under the control of a broadly trained professor and an adequate staff, who give their entire time to the treatment of hospital patients, the teaching of assistants and students, and the investigation of problems connected with their work.

You may ask how such a clinic differs from a lying-in hospital? And I would reply in two important particulars: first by affording opportunity for the connected study of the physiology and pathology of the entire reproductive process in women, instead of mere child-bearing, and secondly, by training young physicians to realize that progress can be attained only by discovering the fundamental laws which underlie the entire process.

In such an institution, which should contain 100 ward beds, facilities should be afforded for the instruction of students, not only in the care of women in labor, but also in everything which pertains to the relief of the various diseases and abnormalities of the generative organs, together with the necessary provision for social service work, prenatal and post-operative care. Equally important are adequately equipped laboratories for anatomical, chemical, pathological and physiological research, with trained and enthusiastic workers and sufficient funds for apparatus and the necessary technical assistants.

In such a clinic women would not only be delivered and operated upon in the most approved manner, and students taught the essentials of practice; but it would fail of its purpose unless the greatest stress were laid upon the investigation of the problems of disease, and unless the students and assistants were inculcated with the idea that they are not dealing with a thoroughly completed subject, but are really assisting in the first stages of its development.

While we are able to deliver women with reasonable safety, to repair certain injuries subsequent to child-birth, and to excise organs which have become too diseased to be useful, it will surprise you to learn that we are almost absolutely ignorant

concerning the significance of the most fundamental functions of the female sex, and that we know very little concerning the nature of most of its diseases and their mode of prevention. For example, we know as little as did Adam and Eve's first children as to why labor comes on at a definite time after conception, or concerning the significance and nature of menstruation. The latter problem is of especial interest to the women present, and particularly to those who are interested in advancing the interests of their sex. Have you ever considered the economical significance of the fact that three out of every five women are more or less incapacitated for several days each month, and that one of them is quite unable to attend to her duties? Granting that the two sexes are possessed of equal intelligence, it means that women cannot expect to compete successfully with men; for until they are able to work under pressure for thirty days in each month they cannot expect the same compensation as the men who do so. Generally speaking, we are only little better able than our grandfathers to relieve painful menstruation and there is little prospect that great progress will be made in that direction until we learn what normal menstruation means and to what factors its abnormal manifestations are to be attributed.

One of the great functions of an ideal woman's clinic would be the study of such problems, which cannot be solved by the busy practitioner, but which may be solved after years of patient work by trained scientific investigators who will be competent to coordinate the results of laboratory research with the problems presented at the bedside.

Institutions such as I have outlined cannot be expected in small communities, but it is my hope that they will gradually be established in connection with the strong university medical schools, as it is only in a true university atmosphere that they can be expected to fulfill their highest possibilities. In smaller cities the small lying-in hospital will always serve a useful purpose in caring for the women of the poorer classes, but it cannot be expected to fulfill the ideals I have briefly indicated.

Thoroughly equipped woman's clinics will always be extremely expensive, as I estimate that one accommodating 100 patients would require an endowment of approximately two million dollars, exclusive of the original cost of the plant—namely, \$60,000 a year for the maintenance of 100 ward patients and \$30,000 a year for the salaries of the medical staff and for the expenses of teaching and research.

Unless adequately endowed, such institutions will accomplish little more than those now in existence; for what we desire is not only to give the patients the most expert care and to train competent practitioners, but practically to develop a new type of medical teacher, who will be free from the distractions of private practice and thus be able to devote his entire time to the care of hospital patients, to teaching and to research. Such men must be adequately paid, and in order to accomplish their work must be surrounded by a high type of assistants and have abundant means to carry on expensive researches.

In communities in which the State has assumed the responsibility for higher education, we may in time expect to see such institutions supported by the taxpayers, when the welfare of the women and babies will be as carefully looked after as the health of the cattle and hogs. In the East, however, such a development will be possible only as the result of private beneficence, and this will scarcely be forthcoming until women interest themselves in the matter and impress philanthropists with the belief that they can do more for mankind by fostering scientific investigation of the problems concerning the health of women and young children than by many of the enterprises to which they now contribute.

I commend agitation of this character to the women who are particularly interested in the welfare of their sex and feel sure that it will accomplish far more good than many of the movements which they are now fostering.

THE PLACE OF THE HOSPITAL IN THE CAMPAIGN FOR THE REDUCTION OF INFANT MORTALITY

Dr. L. Emmett Holt, New York: Since by far the largest part of the effort for the reduction of infant mortality is along lines of the prevention of disease, it is evident that little of this can be done in the hospital. Preventive work must be carried on chiefly by those agencies which instruct the public in infant feeding and hygiene. But those who teach these subjects, whether as doctors or nurses, must themselves be taught. As has been said many times during this session, we must begin by educating the educators.

Twenty-five years ago very little was taught in medical schools regarding the hygiene of infants or their diseases. To-day most of the medical schools of the higher grade are giving some time to this branch of medicine, but more time is needed

if much is to be accomplished. For this work the children's hospital is indispensable. The student must not only have lectures on these subjects, he must have the opportunity to see sick infants, to know to what diseases they are liable, and to learn how they are to be recognized and treated.

One of the things which detracts most from the value of vital statistics is the deplorable fact that so many errors of diagnosis are made by those who sign death certificates. It is only in hospitals that accurate diagnosis can be learned; only in hospitals that the most serious diseases can be observed; only in hospitals, not in out-patient clinics nor in milk stations, that very sick infants can be properly cared for. If our therapeutics of disease in infancy and childhood is to advance beyond the routine use of a few domestic remedies like castor oil and paregoric, the diseases of infancy must be studied seriously and thoroughly by men trained in medical science.

By all means let everything possible be done to keep the baby well, but when, in spite of all precautions, he does fall ill, let us have experienced men and well-equipped institutions where such cases can be suitably treated, not bungled by the inexperienced or the ignorant.

Without the special hospital there can be no real specialists. Without the hospital and the specialist there can be no proper teaching of this important branch of medicine. Nurses also must get their training in well-equipped and organized special hospitals. The problems connected with very sick children cannot be taught nor appreciated by nurses whose only experience has been in general hospitals for adults or in milk stations or dispensaries. If life is to be saved, a nurse must be able to recognize at once when an illness has reached a really serious stage and requires special advice and treatment. To hold on to a case until the child is almost in a dying condition and then transfer it to a hospital is too often the plan followed. This would not occur if the nurse had received a training in an infants' hospital and realized how much more could be done for such cases in a hospital than in the tenement home. We need educated trained nurses, but even more do we need nurses with special experience who have been taught to observe sick infants and who know when something more than their own efforts is demanded.

The infants' hospital has perhaps its largest function to perform in the investigation of this comparatively new field in medicine. Many problems in hygiene and feeding are still unsolved and there are many common diseases of whose causes

we are still grossly ignorant. It is only by carefully conducted chemical and bacteriological studies, which cannot be carried on except in well-equipped hospitals, that not only the causes of disease but the means of prevention can be determined.

Much in lessening infant mortality could, of course, be done if we simply devoted our efforts to promulgating truths already known regarding infant hygiene and infantile disease, but soon progress would cease. We need not only a publicity campaign and a campaign of education, we must have continually at work a group of trained men whose researches shall bring forth new knowledge, who shall teach us what is vital and what is irrelevant both in prevention and in treatment.

The subject of disease in young children is full of unsolved problems, which are one by one being cleared up as we get a better understanding of the basal sciences upon which medicine rests.

To instruct students, to teach physicians, to train nurses, we must therefore have the special hospital. To advance knowledge and put the special branch of diseases of infancy upon a scientific basis, a special hospital is indispensable.

Only in a hospital can conditions requiring special therapeutic measures, whether medical or surgical, be managed, if life is to be saved. Although there may be treated within its wards only a small percentage of the infants who fall sick, let us not think the part filled by the hospital small or unimportant in the reduction of infant mortality, since the hospital alone furnishes a place where those who form public opinion can themselves be taught proper views regarding essential methods of prevention, the most exact means of diagnosis and the best means of treatment of the diseases of infancy. The work of the hospital is and always must remain of fundamental importance, for upon it rests the whole superstructure of prevention and cure of disease in infants.

THE SOCIAL SERVICE DEPARTMENT IN CHILDREN'S HOSPITALS

Dr. J. H. Mason Knox, Baltimore: The subject of giving the dependent classes a better chance for health has been well covered. The social service department is a new feature of nearly all of our children's hospitals. Those of you who are familiar with the out-patient work of children's hospitals know how difficult it is to follow the cases, what a small proportion

of the cases come back for a second visit. The social service worker receives these people as they come to the clinic, knows the mother at least by sight, collects the small fee where it is possible, and forms some opinion of the social status of the parent. The case goes back to the doctor and is referred to the social service worker. In the children's clinic at the Johns Hopkins Hospital eighty per cent of the cases came back the second time in the last two months, owing to the valuable services of our social worker. She is in touch with the other social service forces in the city. She knows, if she cannot admit a case, what other free beds there are in other hospitals. She knows where to find a baby nurse for that particular district in which the patient lives, and to whom the case can be referred for feeding; and directions transmitted to the nurse by telephone are carried out in the home. She makes the visits and determines whether that case ought or ought not to pay a small fee. The whole social history of the family is ascertained. Many cases of treatment can be carried out in the homes through the co-operation of the social service worker and the nurse, that would otherwise fill up the wards unnecessarily. We have now a series of cases of chorea or St. Vitus' Dance well cared for by district nurses. The importance of the social service work in connection with baby lives is just beginning to be appreciated. I feel very strongly that we will do our best for the dependent infants when we make the welfare stations numerous in our city and have one nurse at each consultation place. I think a nurse loses that intimate contact with the mother which she ought to have as a friend when the districts are made too large. I hope the time will come when we can have so many districts that we will put on the list of the nurse not more than 100 to 150 names for her attention. In this way she can be the helper in all things pertaining to the babies in that small district, and to the mothers requiring aid. Then maternity cases in the obstetrical clinic can be referred to her, and she can make her acquaintance with the mother before the baby comes and follow up that infant life through its whole period, and she will be the natural person to carry out any prophylaxis as far as eyes are concerned. Then, too, she would be the one to send ill babies to the proper hospital, or, as is done now, to the Thomas Wilson Sanitarium in summer. It seems to me until we do develop this intimate and close relationship between the nurse in a not too large district with the mothers requiring aid, we will not be doing all that we can to put the dependent infant on a par with the infant that is born under more fortunate circumstances.

THE FOUNDLING ASYLUM AND THE UNMARRIED MOTHER

Ellen C. Babbitt, New York: The highest mission of the foundling asylum is to care for the unmarried mother, for when the mother with her unborn baby is "found," much may be done for the prevention of the class known as foundlings—meaning thereby abandoned babies. As a help in finding the unmarried mother, the prenatal work begun in this country by the Woman's Municipal League of Boston and now carried on in many cities, is of the greatest value. When the prenatal nurse, trained especially for this work, has the unmarried expectant mother under her care, she provides for her physical, mental and spiritual well-being before the baby's birth, for her confinement and for after-care.

The foundling asylums which receive the mothers before their babies are born have opportunities to supervise the prenatal hygiene, and to see that the mothers are in good condition to welcome their babies, and to give them breast milk. Too often, the confinement expenses in these institutions are paid by the mothers' scrubbing. If these mothers have more breast milk than their own babies need, if, by the law of supply and demand, the supply of breast milk can be increased, might it not be better to use them as wet nurses, as the Wassermann test makes that safe? Or, might not this life-saving milk be drawn for motherless babies, or for those whose mothers are unable to supply an adequate amount?

What of the prenatal work done by the maternity hospitals other than those connected directly with the foundling asylums? Some of them maintain out-patient departments, keeping the expectant mothers under close supervision, the best of these departments having nurses going into the homes. The value of this work is shown in the statistics of the hospitals doing it; especially significant is the large percentage of supervised mothers who are able to give breast milk to their babies. The prenatal nurse impresses on the expectant mother that to nurse her baby is her atonement.

Apart from the medical side of the work of the maternity hospital, what may be said of the social side of its work? Is the mother taking care of her baby, and in so doing coming to love it? Yes, in Queen Charlotte's, in London; no, in many of our hospitals where the babies are kept in other rooms and brought to their mothers only at feeding time. This may be good hospital management, but it is certainly not done with the best good of the mother in mind. The lessons on the care of the baby given in the London hospital daily and at the

mother's bedside, the baby's bed being beside the mother's, are with us too often left to the last day, or for the visiting nurse, in such of the hospitals as have follow-up work.

And what of the hospitals which dismiss the mothers at the end of ten days or two weeks, what recognition do the unmarried mothers receive of their need at this time? Is the mother nursing her baby, feeling its dependence upon her? Or has the baby been weaned in the hospital, perhaps never been breast-fed? Has the mother's physical need of her baby during these first days been overlooked? Much of the harm done thereby is shown in other hospitals to which the mothers go later, say the physicians.

Where do these unmarried mothers of ten-day-old, artificially fed, unloved babies go? Often to the foundling asylums, where mothers may leave their babies. Where does the blame lie for the high mortality therein? If the rule laid down by the Johns Hopkins Hospital, by the Boston Lying-In, and others, be followed—that every mother who is physically able to do so shall nurse her baby during her stay in the hospital—much good might thereby be done for the mother as well as for the baby.

If the unmarried mother leaves the hospital, loving and nursing her baby, her next need is to get into normal relations as soon as may be, that is, she needs to be in a family. The most enlightened people who think on these things arrange for the reception of the mother with her baby in a carefully inspected private family where the money paid for board will make it worth while to give them good care. Both baby and mother are kept under medical supervision. As soon as the mother is able to do regular work, she must be helped to find it. Here again there is a danger to be avoided. Every woman does not succeed at housework. A scheme must be worked out whereby the mother may do the work for which she has aptitude, going to it by day and returning to the home where her baby has been looked after during the day, to care for it herself at night. This system as followed out in Hungary and by some societies here, has been vastly successful not only in preventing the deaths of babies, but in saving the health of many babies and their mothers.

If the mother going to the foundling asylum, asking to have the asylum take her baby, could be given the money otherwise paid by the asylum to a foster-mother taking charge of that baby, might the mother not be encouraged to try to supplement this with her earnings? The statistics given by Hungary

show that the mortality of the illegitimate babies supported by the Government and kept by their own mothers is lower than that of such babies boarded with foster-mothers. The careful supervision given to the babies, who are wards of the state, includes the mother in its good effects.

THE PART OF THE CHURCH

Rev. Dr. John Van Schaick: If any man doubts the reality of human progress, I wish he could have attended this session this afternoon. Or if not, I wish he might take the proceedings of the last annual meeting of this organization and read them. We have had opened up before us this afternoon different avenues of service, different instrumentalities and specialties highly organized throughout our community, all making efforts to save the children. I have to remind you in the closing hour of this conference that there is another organization dating back through many centuries, which has organized itself among many races and expressed itself in many forms, and though it has sometimes been said that it was a wrecked and ruined concern, it has always had a great faith in individuals. I want to tell you that the greatest help the church can be in this program is to stick to its distinctive job of making men feel more that this is God's universe, that we are all His children and have our part to do in serving one another. But we must not stop there. A church ought to know the social service agencies of its community. It ought to have a survey in its mind and heart of what is going on around it. It ought to know what the work of a society like this is. We cannot preach about it every Sunday, but incidentally, a paragraph here and a reference there should indicate that a preacher knows about these things and sympathizes with them and prays over them and will help to carry on the great work of education in his parish. And he can get this helpful literature and help spread it. There are a thousand and one opportunities to help in this work. Is it the duty of the church to organize machinery for the carrying on of this work? I say it is not. It depends on the community. Time was when all the hospitals were church hospitals; when all the beggars were fed at the monastery gate; when all the schools were church schools. But the history of civilization shows that gradually the church stripped herself of these functions and the community took them up and organized them as what are called secular agencies. But where work needs to be done that is

not being done, it is the business of the church to do it. It may be a dispensary or a milk station. It is the duty of the church to do it. Here is where we have made our mistake: Where a community is enlightened and has moved forward and has organized itself in many different ways, the church ought not to duplicate efforts or to compete or to stand in the way of this progress. It should only cooperate with the existing secular agencies, sometimes by helping to support a nurse here or there, sometimes only by recognizing an infinitely better fitted organization like this for doing the work, or recognizing the work of the associated charities for caring for the poor, or helping a tuberculosis association face its problem or the social settlement people to do their work in their neighborhood and institution. The duty of the church is to recognize that here is an instrumentality through which to send its workers and to make its application of the great faith that it has cherished so many centuries. I hope we here in Washington may do more to cooperate with this great society and other societies like it.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

AFFILIATED SOCIETIES

REPORTS

1913

The affiliated societies were asked to indicate as far as possible their activities along the following lines:

- I. To what extent does the registration of births serve as the starting point for your work?
- II. What proportion of the infant population is reached by the work of your association?
- III. Is your work carried on during the summer months only or during the entire year?
- IV. When was your work started? What effect has it had on infant morbidity or mortality? Can you give statistics?
- V. What connection have you with the Department of Health?
- VI. What relation does your work have to other welfare work in your own city or town?
- VII. Do the activities of your association include prenatal as well as postnatal work?
- VIII. If they include prenatal work, please outline the plan followed,
Character of instruction?
By whom given—in classes—to individuals in their own homes?
How long has the prenatal work been carried on?
How many mothers have been reached?
Does your association provide obstetrical service?
The effect of this special care and instruction on the health of the mother and child?
Please give figures, if possible, to show how many of the babies whose mothers have had this instruction, have been breastfed for 1 month, 2 months, 3 months, 4 months—up to 10 months
- IX. Please outline the general plan followed in your postnatal work?
The number of welfare stations?
Character of the instruction given?
Does it include weekly conferences between doctor, mother and nurse, instruction of mothers in their own homes, nursing care of sick babies?
Does it include the distribution or sale of milk?
- X. How many doctors and nurses are on your staff?
- XI. How is your work financed?

ALABAMA**INFANT WELFARE SOCIETY****Birmingham**

ORGANIZED SEPTEMBER, 1913

PLAN OF WORK

Practically all births reported in poorer districts will be investigated by the Infant Welfare Nurse

Headquarters of Infant Welfare Nurse to be in the office of City Health Department.

Metropolitan Life Insurance gives prenatal instruction to all cases reported; postnatal care, only where complications exist; provides obstetrical service, and care to sick babies over one year old.

Graduate nurses give prenatal instruction and postnatal care to all of their cases. This has been carried on for eighteen months. They also give obstetrical service.

Associated Charities Nursing Department. Nursing care given all sick babies. Special care in cases of ophthalmia.

Metropolitan—Three nurses on staff. Associated Charities—One nurse one-half time.

CANADA**THE BABIES DISPENSARY GUILD****Hamilton, Ontario**

- I. From the registration of births, we obtain a mailing list for "Mother's Letters," which tell the parents of the existence of the Babies' Dispensary Guild, something of its organization and purposes, also giving such parents as do not require the assistance of the Dispensary an opportunity to help the work financially or to refer to the Dispensary, other parents who are not as able to meet the expenses entailed in securing medical attention for their children.
- II. During 1912, the birth list numbered in our city 2,554. The number of cases admitted to the Dispensary in 1912 were 265 (age limit 2 years). Approximately, 10.4 per cent of births.
- III. The work is carried on throughout the entire year.
- IV. The Dispensary was begun in June, 1911.
The death rate among infants in our city showed some decrease in the last 3 years, but on account of the rapid increase of population from immigration, the exact percentage is hard to calculate accurately, however. The deaths from gastrointestinal trouble alone, are steadily on the decline.

1910—43.4% of total deaths.

1911—27.0% of total deaths.

1912—25.5% of total deaths.

- V. We have no connection with the Department of Health, other than we refer to them cases of poor housing, faulty sanitation, etc., when the visiting nurse comes in contact with undesirable conditions in homes visited.
- VI. The work of the Babies' Dispensary Guild has no connection with other welfare work in the city except in a cooperative way, the Dispensary referring cases to other organizations under whose work these cases come more directly when occasion arises, the societies refer cases in the same manner to the Dispensary.
- VII and VIII. During the winter months of 1912, one afternoon a week was given up to mother's classes, including the cutting out and making of garments, short talks and demonstrations given by the nurses on the proper care and clothing of the infant, and prenatal instruction. The garments made at the sewing classes were sold for the price of the material, which was bought at a reduced, or wholesale rate. Homes of expectant mothers, of cases in attendance at the Dispensary are visited more frequently and instruction and help given in the homes as far as possible. The association does not provide obstetrical service, but cases are referred to the Victorian Order of Nurses, who devote a great deal of time to this branch of work. In every case, receiving this instruction, the mother has been able to breastfeed her infant, if not entirely, partially, using mixed diet, breast and certified milk mixture, according to the clinic doctor's orders, approximately 100% for 1 month (85% breastfed entirely) 50%—4 months 75% for 2 to 3 months; 25%—9 months; none longer period. In no one case where the baby was second or more child, had the mother nursed the previous baby.
- IX. As yet, no branch stations have been formed, daily clinics being held at the Dispensary to which the mothers bring their babies, weekly, or at longer intervals, according to the doctor's orders, for conference and advice. A doctor and nurse is in attendance at the clinics daily. Demonstrations of feedings, etc., are given at the Dispensary, or if occasion demands it, in the homes, and succeeding visits, averaging about two in a month are made by the nurse to the homes for further instruction and advice. Sick babies are called on more frequently, and assistance given to the mother in the carrying out of any treatment prescribed. Certified milk in pints and quarts is brought into the city, and resold to, and delivered to the homes of, the patients at a greatly reduced rate. Proteid milk (Meyers and Finklestein's) is the only formula made at the Dispensary. This milk is not delivered.
- X. The Dispensary medical staff consists of twelve doctors, appointed by the Medical Board, six of whom are in attendance at the Dispensary for a term of three months, one for each day of the week. The nursing staff consists a supervising nurse, a visiting nurse, and during the summer months, a third nurse, to assist at the daily clinics.
- XI. The Babies' Dispensary Guild is supported by voluntary contributions from the general public, membership fees, and a very small city and provincial grant. A publicity campaign in 1912, added greatly to this work, the pledges in several cases extending as far ahead as 1915.

The statistical report follows:

Previous number patients admitted.....	329	
Present number patients admitted.....	371	
		<hr/>
Total number of patients admitted to Dispensary....		700
Number re-admitted.....	47	
Number interviewed, not admitted.....	84	
DISPOSAL OF CASES		
To family physician.....	29	
To hospital.....	19	
Discharged, cured.....	123	
Discontinued	197	
Deaths (5 gastro intestinal with us over 2 weeks).....	23	
		<hr/>
	391	
In regular attendance on clinic roll.....	158	
Total daily clinic attendance.....	3,310	
Total number cases with feedings supervised by medical staff..	61,464	
Average number of cases with feedings, etc., per day.....	168	
MILK DELIVERED		
Certified milk.....	35,991	quarts
Proteid	2,930	quarts
Special	405	quarts
Number new visits for investigation and instruction....	502	
Number special nursing... ..	161	
Number on cases referred.....	104	
Number revisits.....	2,832	
		<hr/>
	3,599	
CASES REFERRED		
To family physician... ..	80	
To City Hospital.....	5	
To Out-Door Department Hospital.....	42	
To Relief Officer.....	4	
To Health Department.....	4	
To Tubercular, School nurses, and other public health organizations	16	
		<hr/>
	154	

HELEN N. W. SMITH, *Supervising Nurse.*

CONNECTICUT

THE INFANT WELFARE ASSOCIATION

New Haven

The Infant Welfare Association of New Haven was started in 1908 as a sub-committee of the Consumer's League, being known as the Pure Milk Committee. In 1912 it became an independent association under its present name, but co-operates very closely with the Visiting Nurse Association, and the New Haven Dispensary. Beyond cordial relations it has no connection with the Department of Health.

The most active season is in summer, four welfare stations being open for the sale of milk from May 15 to October 1st. From four to five nurses are employed with several assistants, and four doctors supervise the weekly conferences, while a great deal of instruction in the preparation of milk and care of the child is given in houses. Besides this, there is the nursing care of sick babies. In October the sale of milk is discontinued, and only two conferences are maintained as we are able to afford only half the time of one nurse. This year we have had 581 babies enrolled, about eight per cent of the infant population. Last spring we undertook a limited amount of prenatal work, and we have had about forty-four cases under care. The instruction was given by the nurse to the mothers in their own homes and the results have been very satisfactory. Of the thirty-two babies, only two have been bottled.

HENRIETTA F. THACHER, *President.*

ILLINOIS

INFANT WELFARE SOCIETY OF CHICAGO

- I. Registration of births does in no way serve us as the starting point in our work. We have a very inadequate registration.
- II. It is estimated that 55,000 babies are born in Chicago annually and one-half of that number are in need of such instruction as is given by our Association. The Association is only able to reach about one-fifth of this number.
- III. The work is carried on during the entire year.
- IV. The work was started in January, 1911. It is not possible to tell what effect it has on the infant mortality or morbidity owing to the lack of accurate vital statistics. It is approximated that the death rate of infants under two years of age for the whole city is between 15 and 20 per cent. The death rate of infants under our care for the past nine months has been 3.3 per cent.
- V. Very close co-operation and during the summer of 1913 five Health Department Nurses were turned over to our society.
- VI. Our welfare work co-operates very closely with all other welfare activities in the city.
- VII. and VIII. Only a small per cent of pre-natal work is possible owing to the small staff of nurses. It is with a great deal of regret that the Society has not been able to include prenatal work, as we believe it is the time when Infant Welfare Work should begin.
- IX. The Society conducts 13 Infant Welfare Stations, holding weekly conferences between doctor, mother and nurse. Milk is not distributed at the Welfare Station, but is delivered in the homes under the direction of the Society. Instruction is given to mothers by the nurse in the home and by the doctor and nurse at the conference.

An attempt has been made to give class instruction, but has been found that much more is accomplished by individual instruction. The mothers with whom we are dealing are not prepared to make application of instruction given in a general way.

- X. We have a staff of 13 nurses, 1 supervising nurse and 13 doctors.
- XI. The work is financed by voluntary contributions. We have a budget of about \$25,000.

After a careful study of the situation in Chicago the following program of work has been outlined, which would be necessary to care for the infant population: 55 Infant Welfare Stations, staff of 20 prenatal nurses, a Registry for wet nurses and supervision of boarding homes.

Such a program would require an annual budget of \$110,000.

MINNIE H. AHRENS, R. N., *Superintendent.*

THE LYING-IN HOSPITAL AND DISPENSARY

Chicago

The Chicago Lying-in Hospital and Dispensary conforms to all requirements expected of a legitimate institution, covering all branches of the work. We do not care for the case after two weeks ordinarily, but should the case need special care it is looked after by our social worker.

In the last eighteen years the hospital has

- 1. Cared for more than 15,000 mothers, with a mortality rate of less than .001.
- 2. Given over 180 physicians 6 months' training exclusively in obstetrics.
- 3. Grounded over 3,800 students in elements of obstetrics and obstetric cleanness
- 4. Trained over 400 nurses to qualify as obstetrical nurses.

EMMA E. KOCH, R. N., *Superintendent.*

EMMA MATTHIESSEN CHANCELLOR MEMORIAL MODIFIED MILK STATION

La Salle

I., II., III. Our work is carried on throughout the year.

IV. It was started June, 1911

It is the only work of this nature in our city.

IX. We have one central welfare station, located in a suitable building. Weekly conferences between doctor, nurse and mother are held. Our service includes instruction to mothers at their own homes, and nursing care of sick babies. We supply milk to those in need. The milk is delivered upon the nurse's order from a practically certified milk route.

X. We have a medical director, but all physicians of the city are entitled to privileges, and to hold conferences.

XI. Our work is financed by a public-spirited citizen.

L. B. VAN HORN, *Superintendent.*

INDIANA

CHILDREN'S AID ASSOCIATION

Indianapolis

Milk-station work of this Association was begun in 1908 with one clinic, which was located in one of the poorer sections of the city. The following year three other clinics were established and each had its own nurse and its physician. The milk at that time was obtained by the mothers at these stations, but as the work progressed it became evident that our field was limited to a radius of about eight blocks from the distributing station and the next problem was the distribution of the milk directly to the home. At the present time we feel that we have in many ways ideal conditions for an unlimited extension of the milk-station work. Our milk comes from a selected tuberculin-tested herd and after pasteurization by the "holding method" it is bottled and delivered directly to the homes by one of the milk firms, which covers the entire city. Our milk is delivered to the home at a cost of twelve cents a quart to the Association. At present four clinics are established in different sections of the city, which will be open the entire year, and our plans call for the establishment of six more during the summer months. The Central Dispensary is located within a few blocks of all the car lines of the city, and to this clinic are brought the scattering cases. In this manner have we solved the problem of pure milk and its distribution.

The medical phase of the work is covered by a staff of physicians under a medical director. Four nurses under the supervision of a head nurse constitute the nursing staff. The city is districted according to the number of nurses employed, and the nurse visits in the home of every child two weeks after its birth return, and instructions are given to the mother as to maternal feeding, and the care of the child and the mother is also advised not to wean the baby until she has consulted her own physician or has been seen by one of the physicians at the clinic. In this way babies have been kept at the breast and others have been started along the right lines of artificial feeding. The nurses also canvass their district for older babies and bring them into the clinic for advice. We reach about 15 per cent of the infant population in this manner.

Our clinics are kept open throughout the entire year, and frequent conferences or mothers meetings are held in which general instruction as to the care of babies is given. It has been endeavored to have the mothers at these meetings ask questions pertaining to their own personal experience.

The work is financed through the Children's Aid Association, which spends \$10,000 a year, \$5,000 of which is appropriated by the city through the Board of Health and the rest is given by private subscription. Close relationship is maintained with the Social Service Department of the Indiana University School of Medicine, and the Fresh Air Mission. Through the latter we are enabled during the summer months to send our sick babies with their mothers into the country. Milk and nurses are also furnished to any case upon the advice of their family physician, who can also retain the supervision of the feeding independent of the medical staff of the Association.

As yet very little pre-natal work has been done, although the nurses have been instructed to advise expectant mothers and the Association will furnish milk to them during the last months of pregnancy.

Simple dilutions are used exclusively by the physicians, and all modifications are made by the mothers in the homes under the supervision of the district nurses. Centrifuged milk can be obtained through the milk company enabling the physician to use a fat free mixture.

Our work has grown from 198 babies in 1908 to 1025 babies in 1913. Eighteen deaths occurred during the last year, many of the babies having been moribund when first seen.

EUGENE B. MUMFORD, *Chief of Medical Staff.*
SUSAN M. KISSELL, *Head Nurse.*

CHILDREN'S DISPENSARY AND HOSPITAL ASSOCIATION

South Bend

- I. We use the registration of births to get a line on all the babies born in the district where our work is done.
- III. Our work is carried on during the entire year.
- IV. Our work was started in 1909.
- V. We have no official connection with the Department of Health.
- VII. We are doing both pre-natal and post-natal work.
- VIII. Our instruction in pre-natal work is given by a nurse in the patient's home. We have just begun pre-natal work, and have only had ten cases. We do not furnish obstetrical service. We have had two maternal deaths and one infant death. The maternal deaths were due in the one instance where a physician was in attendance to tuberculosis, in the other, a midwife, to a hemorrhage. The infant death was due to asphyxiation. Our instructions to mothers are along the line of diet, open-air exercise, ventilation of sleeping rooms, care of breasts, importance of breast feeding and of urine tests.
- IX. In our post-natal work we have one Welfare Station; in the summer we have daily conferences between physicians, nurses and mothers. In the winter we have weekly conferences. Our work aims to be along prophylactic lines, but we treat diseases when necessary. We distribute, sell or give away milk according to circumstances.
- X. We have four attending physicians and three consultants.
- XI. Our work is financed by general subscriptions.

CHARLES E. HANSEL, M. D., *Medical Director.*

IOWA

CHILD WELFARE COMMITTEE OF THE BURLINGTON CHAPTER OF THE RED CROSS

The Child Welfare Committee of the Red Cross has been at work in Burlington since January 16th, 1912. It has now completed its first full fiscal year.

As the babies have outgrown our age limit of two years, others have been enrolled to take their places, and we are now in touch with more babies than we were at the same time last year. Our greatest advance.

however, has been in the increased cooperation of the mothers, who have come to us with a better understanding of what we are trying to do for them, and have made great gains in profiting by the instructions given. Some mothers are like the woman who said "You can't teach me anything about raising children, I've buried six." As our work consists mainly in instruction along the lines of feeding and general hygiene, our greatest success has usually been with the young mothers with their first baby.

These meetings are held every Friday afternoon, at 3.30 at the Y. W. C. A. Building, with a nurse and doctor in charge. Records are kept of the babies' birth, weight, changes in feeding and other items pertaining to the individual's case. The physician instructs the mother, after his examination of the child, and calls the attention of the nurse to any cases that will need special care before the next meeting. Sick babies are not treated at these clinics, but are referred to the family or county physician, or a specialist, if the case requires it.

When the people of Burlington are enough aroused to the necessity for pure milk to insist upon having it, our work will be much more effective. At present, one of our greatest difficulties is in procuring clean milk for the bottle-fed babies.

Replying to the questions:

- I. The birth registration law is entirely unenforced in Burlington, and I fancy throughout the state.
- II. For the above reason we cannot tell what proportion of the infant population is reached by our work. The health officer, however, tells me that they estimate about 350 births a year, and we have approximately 30 babies attending meetings at the welfare station.
- III. The work was started January 16th, 1912. We can give no statistics as yet about its effect on infant mortality.
- IV. Our relations with the Department of Health are cordial, but not organic.
- V. We work in harmony with the Charity Organization and the Visiting Nurse Association.
- VI. and VII. We have attempted practically no prenatal work.
- IX. and X. We have no nurses of our own—the Visiting Nurse does our work, and six doctors have given their services.
- XI. The work so far has been financed by private philanthropy.

MARY P. MCILVAINE, *Chairman,*
Burlington Chapter of the Red Cross

KANSAS

THE CHRISTIAN SERVICE LEAGUE OF AMERICA

Wichita

The following report summarizes the work of the League in caring for babies under one year of age, for the six years ending May 31, 1913:
Number of babies received, under one year of age..... 155

UNDER ONE MONTH

Number of babies received under one month..... 81
Number of babies who have died in the care of the League, and who were under one month when received..... 12

Number of babies who died while with foster parents, and who were received as wards of the League before they were one month old.....	3
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BETWEEN ONE AND THREE MONTHS

Number of babies received.....	38
Number of babies who have died in the care of the C. S. L., and who were between one and three months old when received.....	5
Number of babies who died with foster parents, and who were received as wards of the C. S. L. before they were three months old	2

BETWEEN THREE AND SIX MONTHS

Number of babies received between three and six months old.....	20
Number of babies who have died in the care of the C. S. L., and who were between three and six months old when received.....	1

BETWEEN SIX MONTHS AND ONE YEAR

Number of babies received between six months and one year old....	16
All children received after they were six months old are still living.	

Two of the one hundred and fifty-five above mentioned were placed in the Wichita Hospital for treatment, where they died. Eleven out of the total of deaths were pronounced by attending physicians as unpreventable. If circumstances had not seemed to compel us to receive infants under one month old, we would have had very few deaths. Had we received none under three months old, our death rate would probably be less than six per cent.

All of the one hundred and fifty-five babies, wards of the C. S. L., except the number who have died as recorded above, are still living. They are well and healthy, without exception. Quite a number of them are now in their sixth and seventh year.

We are quite sure that any other society could do as well as we have done during the past if proper care were exercised and a proper effort put forth. We believe that many of them who have had a very large death rate have probably endeavored to do their best to preserve the lives of the babies; but either through lack of proper methods, lack of knowledge or lack of adequate financial support, they have failed.

The statements which have been made by eminent physicians that only a very small per cent, if any, of abandoned infants ever live to be two years of age will not hold true with wards of The Christian Service League. Not only are these little ones living whom we have taken and cared for during the tender period of the early months of their existence, but they show as good prospects of living to maturity and to a ripe old age as do other children of the community.

GEORGE L. HOSFORD, *General Superintendent.*

KENTUCKY

THE BABIES' MILK FUND ASSOCIATION OF LOUISVILLE

- I. The Registration of births has been of little service although an attempt was made to have all births recorded by City Physicians referred to the Association on mailing cards provided for the purpose.

- II. In 1912, the total registration of the Babies' Milk Fund Association was about 18 per cent of the birth registration that year.
- III. The work is carried on during the entire year.
- IV. The Milk Fund Association was organized in 1908. According to a statement in the report of the Department of Health for 1912, there was a reduction of 50 per cent in deaths from diarrheal diseases that year. There are no statistics available to show the effect of the work except a steadily decreasing death rate in the records of the organization.
- V. We have no connection with the Department of Health except by close co-operation.
- VI. Affiliation with all kindred welfare work.
- VII and VIII Systematic pre-natal work has been started recently in connection with free obstetrical service. Instruction is given by physicians at the obstetrical clinic where the expectant mothers are required to report at intervals, and by nurses who visit in the homes.
- The free obstetrical clinic, opened September, 1913, has not been in operation long enough to furnish useful figures. The plan of the clinic is to give thorough prenatal instructions, and care with adequate and expert obstetrical service at the time of delivery and postnatal nursing for ten days.
- IX. The postnatal work includes the sale and free distribution of certified milk, also laboratory modifications when necessary; nursing care of sick babies, weekly conferences between doctor, mother and nurse, individual instructions in the home and demonstration to groups at the Stations.
- The Association maintains five Stations.
- X. The medical staff consists of a medical director and five station physicians with an alternate for each; the nursing staff, of a supervisor and six nurses.
- XI. Our work is financed by appropriations from City Council and Fiscal Court, and private subscriptions.

GAVIN FULTON, *Medical Director.*

MARYLAND

COUNCIL MILK AND ICE FUND Baltimore

- I. We supply the milk, ordered by the visiting nurse or physician.
- III. Our work is carried on during the entire year.
- IV. We started in the summer of 1895. Do not keep an exact record of the mortality. Consequently cannot give statistics.
- V. Our work is conducted independently, but
- VI. We co-operate with all Associations doing welfare work.
- VII. Our activities include both prenatal and postnatal work.
- VIII. The prenatal work is done by the Visiting Nurses or Baby Milk Association, who co-operate with us, whenever a case is reported.

- IX. The outline followed in the postnatal work, is observation of the child, and insistence of the proper feeding, until child is two years old. As many mothers as we can influence are requested to bring their babies to the weekly conferences at the Babies' Milk Fund Stations, where the conferences are held with doctor, mother and nurse. The orders for the milk are sent by the physicians of the various hospitals, as well as from attending doctors.
- XI. The Federated Jewish Charities, appropriate the necessary funds to carry on this work. The distribution is about 44,000 quarts of milk per annum.

MRS. ISIDORE ASH, *President.*

MARYLAND ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

("Babies' Milk Fund Association of Baltimore")

February 1st, to September 1st, 1913

(From beginning of present fiscal year, for seven months only)

- I. The Babies Milk Fund Association receives its prenatal calls directly from the obstetrical departments of the leading hospitals. We also receive calls from expectant mothers directly, neighbors and the Charity organizations and other associations engaged in welfare work.

CALLS REFERRED

Johns Hopkins Hospital....	783
Mercy Hospital.....	394
Maryland General and Maryland University Hospitals	78
Federated Charities.....	31
Instructive Visiting Nurses Association....	6
Tuberculosis Nurses.....	6
Neighbors and Patients.....	54
	— 1,352

- II. There are approximately between 15,000 and 17,000 babies born yearly in Baltimore, and of this number we have reached from February 1st, 1913, the beginning of our fiscal year, to September 1st, 1913, (7 months), 3,930 cases, a decided increase over the year 1912, and about 20 per cent of the total infant population.
- III. This work is carried on throughout the year, three temporary nurses being added for the summer work only.
- IV. The Babies Milk Fund Association was organized during 1904—a full report of the organization is given in "Report of The American Association for Study and Prevention of Infant Mortality, October, 1912."
- V. The Babies Milk Fund Association has no connection with the Board of Health, except co-operative.

- VI. We have hearty co-operation with all agencies engaged in welfare work, physicians, hospitals and dispensaries, and the various nursing organizations.
- II. The Association has been engaged in prenatal work since October, 1910, first in connection with the Johns Hopkins Hospital obstetrical department, and since February, 1911, we have worked in connection with the four leading hospitals in both prenatal and postnatal work.

OUTLINE OF PRENATAL WORK.

- II. Instruction general, both social and medical, by doctors and nurses in classes, and in their own homes.
 Work has been carried on for two years, beginning first with the postnatal work from the Johns Hopkins Hospital, in 1910, and in February, 1911, we started our prenatal and postnatal work from the four leading hospitals.
 About 4,000 mothers have been reached.
 We see that the patient gets the proper care. We ourselves do no obstetrical work except in emergency cases.
 We have found that at least 80 per cent of our babies are breast fed, and the other 20 per cent either have been partially breast fed or altogether bottle fed. (See Table No. 3.)

POSTNATAL WORK.

- IX. When the baby is ten days old, and after it has been discharged by the hospital service, we visit the mother and child. Our visiting doctor makes if possible a physical examination; the weight is taken and the chart started. From then on we see the baby as often as possible either at home or welfare station until it is a year old, when the doctor makes a second visit and a physical examination, and the chart is discharged. Of course this does not mean that the baby is discharged altogether, as we encourage the mother to keep in close touch with us until the child is at least 3 years old.
- X. We have ten Welfare Stations. We have weekly conferences between the mothers, doctors and nurses, and also instruct the mothers in their own homes.
 The staff includes:
 The Medical Director, Dispensary Physician, five Conference Physicians, one Supervising Nurse and eight Field Nurses.
- XI. Our work is financed by private subscriptions, and one annual appropriation from the Thomas Wilson Sanitarium.

TABLE No. 1

PRENATAL CASES REFERRED

February 1st, to September 1st, 1913

Station		Hospitals			Md. Neighbor	C.O.S.	V.N.A.	T.B.N.
		J. H. H	Mercy H.	Univ Md. Gen.	and Pts.			
No. 1	256	197	51	...	1	2	2	1
" 2	334	270	60	...	4	...	...	...
" 3-8	116	11	83	1	16	3	1	1
" 4	116	41	18	45	...	12	...	...
" 5	260	70	132	32	23	3	3	...
" 6	199	160	32	...	3	4	...	...
" 7	50	33	9	...	4	4	...	...
" 9-10	21	1	9	...	3	3	...	4
Total...1,352		783	394	78	54	31	6	6
Prenatal ..			827	Miscarriage before rfd.....			14	
Postnatal			154	Still born before rfd....			12	
Left city.....			46	Mistaken diagnosis.....			22	
Wrong address.....			199	Repetition			37	
Did not want to be visited..			9	Could not visit.....			28	
Died before rfd.....			1					
Premature before rfd.....			3	Total			1,352	

TABLE No. 3

PRENATAL

Babies Being Followed And Their Diet

Carried from 1912.....	...	...	380
Delivered since February 1, 1913.....	565	...	...
Still born .....	...	34	...
Moved-lost .....	...	109	...
Left city .....	...	60	...
Died .....	...	60	...
Miscarriage .....	...	13	...
Died 1 month, premature.....	...	3	...
Died full term.....	...	24	...
Balance followed.....	...	...	262
		...	642
Postnatal followed.....	...	...	154
		...	796
Breast fed.....	540		
Bottle fed.....	158		
Breast and bottle.....	98		
		—	796
Discharged 1 year in good condition.....			371

M. FRANCES ETCHBERGEE, R. N., *Superintendent.*

MASSACHUSETTS

MASSACHUSETTS BABIES' HOSPITAL

Boston

(Formerly Massachusetts Infant Asylum. Founded 1867)

**A Society Combining Hospital Care with the Placing at Board in
Private Families of Well Babies whose Parents are
Temporarily Unable to Care for Them**

Forty-six years ago a group of philanthropic people in Boston, believing that the infant mortality among the babies cared for by the State was too high, formed themselves into a society which had for its object the reduction of infant mortality. It was founded with these two great principles in mind: That a family is the best place for a baby, and that breast milk is the best food.

They began by placing well babies at board in selected private families, and by keeping the sick babies in a house hired in the suburbs,

where they were wet-nursed by foster mothers. Each foster mother having one other baby besides her own to nurse. Later a house was built especially for these sick babies.

A good many years have passed since then and many changes made, but the two great principles of the work are the same.

At the present time the babies at board are visited every week, and sometimes oftener by trained nurses.

Meetings for the boarding women are held once a month, and talks are given on the physical and ethical care of the baby.

The old house has been enlarged and reorganized, and now is a hospital especially equipped for the study and treatment of infant diseases.

The hospital gives a special course to graduate nurses, and at the present time is affiliated with one hospital of good standing. It also has a course for nursery maids.

Clinics are held in the out patient department to which mothers bring their babies for treatment. At the same time they receive instruction in preparing milk and the general care of the baby.

A directory for wet-nurses which was established nearly three years ago, is carried on in connection with the hospital. Its object is to supply mother's milk to desperately sick babies and to encourage the natural feeding of babies. A thorough physical examination and Wasserman test is made on each wet-nurse.

Every baby admitted for boarding care is examined at the hospital, and if necessary is kept in the hospital until in fair condition to be placed at board. They are examined again at the hospital before going home.

An effort is made to keep in touch with the family while the baby is under the Society's care. When the conditions are removed which made it seem necessary to take the baby out of its own family, the baby is returned home. The mother is given a slip on which the milk formula and rules for the care of babies is printed also the address of the nearest milk station. A return post card is sent to the same milk station with the request that this Society be informed if the baby is or is not under their care. If not, other arrangements are made to place the family and baby under proper supervision.

Report November 1, 1912, to November 1, 1913.

Applications	851	
Number in care of Society Nov. 1, 1912.....		115
Admitted during year.....		421
Total.....		536
Discharged	344	
Died	80	

ALICE M. CHENEY, *General Secretary.*

MASSACHUSETTS MILK CONSUMERS' ASSOCIATION

Boston

An Association Formed to Unite Consumers in Obtaining Efficient Inspection and a Pure Milk Supply

The Massachusetts Milk Consumers' Association believes that in spite of its failure to secure the legislation which is its object nevertheless considerable progress has been made. This year as never before the

candidates for the Legislature have appealed to the consuming public to note their record and their pledges in this most important matter—many of those who had voted for the Consumers' Bill in the past using in their campaign for election to the General Court this year the letters of approval previously sent them by this Association.

The Association has continued its active campaign of education all over the State. It has sent its officers to speak before Granges, Women's Clubs, Pure Food Fairs, Labor Unions and other gatherings. It has distributed literature in large quantities to newspapers and individuals—during the past fourteen months over 61,000 letters and 35,000 pieces of literature have been sent out. The cooperation of the press has been an invaluable and constant help. The exhibit prepared for the XV International Congress on Hygiene and Demography has been touring the State for the past year together with the exhibits of the State Board of Health and those of other public and private organizations. Beside this the Association has just got up with the help of the National Committee on Child Welfare Exhibits a small traveling exhibit to lend to any Massachusetts people desiring it. They confine themselves to Massachusetts for the allusions are necessarily local because its purpose is to enlist interest and to arouse enthusiasm to carry out their measure, namely, to give to the State Board of Health the power to protect the health of the people of Massachusetts by safeguarding the milk supply. The bill would protect not only the lives of the consumers, but the pocketbooks of the clean producers who form the great majority of the farmers of Massachusetts and whose product is at present most seriously injured through being contaminated by the admixture of the dirty milk supplied by the few careless producers in Massachusetts and other States. Out-of-State milk peculiarly requires a system of State-wide inspection for its control.

Progress has been made in spite of the failure of the Governor and Legislature to grant the people the protection they need. Even the opponents of the Association acknowledge that much good has been accomplished by its work and that the dairies are noticeably cleaner as a result of its campaign. Perhaps some of the reduction of infant mortality during the three years of its existence may be due to the labors of this Association. The rate of infant mortality in Massachusetts has been reduced from 134.2 in 1910 to 117.8 in 1912. The deaths under two years from diarrhea and enteritis are but 85 per cent of what they were in 1910. They then numbered 3,744 whereas in 1912 the number was only 3,180.

The most serious opposition to progress comes from the Master of the State Grange, a small county politician, and from the State Board of Agriculture, which is a State Board only in name, consisting rather of an aggregation of 40 units chosen mostly by the many small agricultural societies of the State, many of whom exist simply to get the bonus paid by the State to agricultural bodies.

About 2,000 producers have signified their approval of the Consumers' Bill.

Some time this opposition will be overcome, for it is merely carried on for self aggrandizement, and it is only a question of time before the people assert themselves in order to save the lives of their children. The Association will work until this their aim is accomplished.

ELIZABETH PUTNAM (MRS. WM. LOWELL PUTNAM).

THE MAVERICK DISPENSARY

East Boston

FOR THE YEAR ENDING SEPTEMBER 30, 1913

- I. Boston Board of Health sees every case in certain districts; gives literature and advice and refers, if desirable, the case to Milk and Baby Hygiene Association and the Maverick Dispensary.
- II. You are referred to the report of the Milk and Baby Hygiene Association, of which we have one station as part of our work in East Boston.
- III. Our work is carried on during the entire year.
- IV. October 1st, 1912, in the present form and place. We can refer to Milk and Baby Hygiene Association report.
- V. The Board of Health nurses refer cases to us.
- VI. Close cooperation. In six months we have referred to other agencies 219 patients (22 per cent). They have referred to us 276, cases or 28 per cent.
- VII. Our prenatal work is carried on as follows:
- VIII. (a) Physician trained in obstetrics registers cases, examines and instructs them. Two specially trained expert nurses visit at intervals of not over ten days in the homes of the patients.
(b) This work was begun February 1st, 1913.
(c) Eighteen cases have been completed.
(d) We do provide obstetrical service.
(e) We have no figures, but consider our results good. We have had no maternal mortality and but one infant death, or 5½ per cent.
- IX. Postnatal work:
An obstetrically trained physician makes 3 or 4 visits as may be necessary. The district nurse visits for two weeks. There is but one station in East Boston. Physician and nurse instruct in the home and then patient is referred to Milk and Baby Hygiene Association later, station being at the Maverick Dispensary. Weekly conferences of mothers with their infants are held at the Dispensary by the nurse and conference physician. Sick babies are referred to regular dispensary clinics. We have a milk station in the building
- X. Our staff consists of the physician in charge of the Dispensary and the Milk Station. He is also conference physician. We have besides an obstetrician and assistant obstetrician. We have a nurse on the infant work and in the summer she has an assistant. We have also prenatal work which takes part of the time of two district nurses.
- XI. Our patients in obstetrics pay a large part of their services. In the Milk and Baby Hygiene no charges are made.

The Maverick Dispensary maintains a general clinic including dentistry week days, throughout the year. A summary of the work for one year:

VISITS BY PATIENTS AT DISPENSARY SEPT 1, 1912, TO SEPT. 1, 1913

	All Patients	New Patients
Medical	1,334	772
Surgical	1,467	668
Dental	389	216
Eye	304	146
Skin	67	33
Obstetrical	43	31
Throat	40	18
Orthopedic	3	2
	<hr/>	<hr/>
	3,697	1,886
Daily Average	12	6

Further classification for six months shows the predominance of children and nationality of our patients:

SIX MONTHS—MARCH 1 TO SEPT. 1, 1913

Children	712	73%	Italian	313	32%
Women	186	19%	Russian	264	27%
Men	73	8%	Others	394	41%
Total New	971	100%		<hr/>	<hr/>
				971	100%

Our relation with other agencies is indicated as follows:

276 (28%) were referred by other agencies

219 (22%) were referred to other agencies

Our policy of referring cases for consultation or treatment to other agencies or hospitals, when more accurate or intricate methods are needed than our equipment at present provides, or where surgical care of considerable gravity is required, we consider has resulted in much benefit to our patients. We are inclined to congratulate ourselves that we have nothing so far to regret from attempting more than our limited equipment would justify. Whereas, we have been able to advise many where their graver ills may receive the most skilled treatment.

A brief financial statement may be of interest. Total expenses, one year, \$3,325.33. (This includes a large amount of permanent improvements.) Total receipts from patients, \$742.57.

A one-month statement—September, 1913. Total expenses, \$82.70; total receipts from patients, \$78.74.

A. B. EMMONS, 2ND, *Physician-in-Chief, Maverick Dispensary.*

COMMITTEE ON INFANT SOCIAL SERVICE, WOMEN'S MUNICIPAL
LEAGUE OF BOSTON

For report, see pages 187-190.

THE MILK AND BABY HYGIENE ASSOCIATION

Boston

- I. Before the City of Boston created the Division of Child Hygiene, the Milk and Baby Hygiene Association received copies of birth registrations from the Registration Department. Our nurses visited these babies as far as possible. Now such babies *as need care* are referred to the Milk and Baby Hygiene Association by the Board of Health nurses who visit every new-born baby. The following table shows how the 2,500 babies under care from January 1 to August 16, 1913, were referred to the Association:

Referred by Board of Health Nurses.....	294
“ “ Baby’s mother or neighbor.....	1,051
“ “ Milk station nurses	354
“ “ Instructive District Nursing Assn.....	111
“ “ Private physicians	284
“ “ Hospitals	247
“ “ Settlements	67
“ “ Associated Charities	32
“ “ Other agencies	64
Total	2,504

- II. Nineteen thousand babies are born yearly in Boston. During 1912, 3,026 were cared for by the Milk and Baby Hygiene Association. For 1913 it is estimated the number will be 4,000, an increase of 33 per cent over 1912, and over 20 per cent of the total infant population.
- III. This work is carried on throughout the year, each welfare station being taxed to the limit of the nurse’s capacity. During June, July, August and September, 1913, there were added four temporary nurses for summer work only.
- IV. The Milk and Baby Hygiene Association the only agency in Boston combating infant mortality through establishing milk stations with adequate nursing service, was started in 1909. The fourth annual report, published in May, 1913, shows the following steady growth:

	1910	1911	1912
Number of babies under supervision at beginning of year.....	738	1,079	1,221
Number of babies supervised during year	1,870	2,827	3,026
Number of visits by babies at conference with doctor.....	10,847	10,972	11,451
Number of home visits made by nurses	28,605	32,156	38,659

Of the 3,026 babies cared for during 1912, 951 were breast-fed, 1,045 partially breast fed and 831 bottle fed.

After three years’ experience in medical service of this Association we are now ready to offer evidence of a measurable reduction in infant mortality as the direct result of our preventive and educational work. The results presented are based on statistical evidence prepared by a recognized expert, Dr. W. H. Davis, Vital Statistician of the Boston Board of Health.

These results are:

1. That the death rate (72.25 per 1000) among babies under one year of age admitted to the supervision of the milk stations in 1911 was 25 per cent below the Boston infant death rate corrected for corresponding numbers, ages and food.
2. That this reduction of 25 per cent was secured with babies whose physical condition was so much below the average Boston baby that their death rate during the first months of supervision was more than 50 per cent higher than the Boston infant death rate among babies of corresponding numbers, ages and food.
3. That the death rate of the bottle-fed babies admitted to the milk stations in 1911 was reduced 31.76 per cent below the corresponding Boston rate.
4. That the results in the reduction of infant mortality were in proportion to the length of time the babies were under our supervision.
5. That the number of deaths due to gastro-intestinal and respiratory diseases, respectively, among babies under our care, indicates the milk-station methods are nearly as effective in combating respiratory as gastro-intestinal diseases, these being the two chief classes of diseases causing death during the first year of life.

A fuller statistical report is in progress of compilation by our medical committee.

- V. The Association cordially co-operates with the Boston Board of Health of which it is quite independent. From January 1 to August 16, 1913, 294 babies were referred by the Division of Child Hygiene to the Association. The welfare stations of the Association are used—in many cases daily—by the Board of Health nurses. The Association, after conferences with the city authorities, laid before the City Council a petition urging that the nurses in the Division of Child Hygiene be doubled for the summer months of 1913. As a result the city increased its staff of nurses in the Division of Child Hygiene from nine to eighteen.
- VI. There is cordial co-operation with all agencies of welfare work in the city: with private and district physicians hospitals and dispensaries, the Instructive District Nursing Association, the children's agencies, relief societies, day nurseries, settlements.
- VII. and VIII. The Association is just now engrossed in working out a plan of pre-natal work. A large amount of pre-natal care is being given by the nurses of the Instructive District Nursing Association. It is planned to tie up this work with the milk stations, so that there will be continuous care for all pre-natal cases. A careful study of the results of pre-natal work is being made by the Milk and Baby Hygiene Association. Miss Mary Beard, director of the Instructive District Nursing Association, has an advisory position on the staff of the Milk and Baby Hygiene Association, and there is extremely intimate cooperation between the two associations.
- IX. Twelve welfare (or milk) stations, from which inspected pasteurized milk is daily distributed at cost from 8:30 to 9:15 A. M. Constant visits are made by the nurses to babies' homes and have resulted in the teaching of 403 mothers to

modify milk at home, an increase of 400 per cent in twelve months. General instruction in baby hygiene and home sanitation is given. The conferences are held weekly or more often at every welfare station, at which the doctor and nurse meet mothers with babies. Babies are weighed and each mother and child individually sees the physician for advice and help. All really sick babies are referred to physicians, hospitals or dispensaries. The nursing care of sick babies is done by the Instructive District Nursing Association.

- X. The staff includes the medical director, paid, and fourteen volunteer conference physicians; one supervising nurse and thirteen field nurses, all paid.
- XI. The Association is without endowment or permanent fund. It receives no grant from the city or State. It is entirely supported by annual contributions and donations.

GEORGE R. BEDINGER, *Director*.

SOCIETY FOR HELPING DESTITUTE MOTHERS AND INFANTS
Boston

- I. The registration of births does not serve as the starting point for our work. Our work begins with the application of the mother to us.
- II. The proportion of infant population reached by our Society varies; in 1910 there were 374 infants; in 1911, 397; in 1912, 323.
- II. This work is carried on throughout the year.
- IV. The Society for Helping Destitute Mothers and Infants was started in 1873 at the New England Hospital. We have no exact statistics, but it is seldom that an infant dies whose mother is under our care.
- V. We have no connection whatever with the Department of Health.
- VI. There is cordial co-operation with other charities in Boston, almost all sending us cases, and we belong to the Associated Charities.
- II. For the first years when we were associated with the New England Hospital our Society included pre-natal work in its activities, but we rarely do this now.
- II. Our pre-natal instruction, what there is of it now, is given entirely through individual friendship, not in classes. Some thousands of mothers have been reached in this way, although we do little of it now. We do not provide obstetrical service.

We cannot give figures regarding breast-feeding, but every mother is encouraged and assisted, if necessary, to nurse her infant through the first summer.

- IX. We have no welfare stations. Our visiting is done by workers from headquarters, who give instruction wherever needed. When necessary there are conferences between the doctor and the mother in the mother's home, where she is given instructions and educated in the proper care of the baby. We do not sell milk, but have often given it.

As our work is so different from other work for infants, it is difficult to give statistics. A large proportion of our mothers are employed at domestic service in different parts of New England, the infant being received with the mother. We usually hear from these mothers the first two or three years after they have been settled thus, but we cannot be sure whether each one is in the same situation after that, although often they come back to see us. Up until about thirty years ago a large number of our mothers had infants placed out to board, which necessitated almost daily visits, particularly in August and September. We made a change in this respect, however, and we now arrange that each mother shall keep her infant in her personal care. We never place an infant at board except temporarily, in case of the illness of the mother. We feel that this is much the best plan, and that a child in the mother's care is much more likely to live.

- X. There are three doctors on our Council and two consulting physicians. We have no visiting nurse.
- XI. Our work is financed through private subscriptions chiefly. We have a small income from legacies

L. FREEMAN CLARKE, *Secretary.*

MICHIGAN

BATTLE CREEK SANITARIUM TRAINING SCHOOL FOR NURSES

The Battle Creek Sanitarium Training School for Nurses as the name implies is purely a training school, yet we are trying to bring our training up to the highest standard and have in it practical work in caring for the infants.

We have affiliated with a Children's Hospital in Chicago, where each nurse gets four months of practical work.

In our obstetrical ward, which is rapidly growing in favor, patients coming from many parts of the United States for care, several weeks and months sometimes before confinement, the mothers are given practical instruction in caring for her baby.

They are taught how to bathe and dress the baby, how and when to feed them, breast-feeding being strongly emphasized, and how to detect symptoms of approaching illness.

We have also in connection with a dispensary a visiting nurse, who goes into the homes of the people obtaining the mother's confidence, though helping in some case of illness perhaps or otherwise relieving suffering and teaching them how and why they should keep their children clean, how to prepare wholesome food and the necessity of ventilation.

Here we come in touch with expectant mothers, and by giving free treatment and nursing for a week after confinement they get the prenatal as well as the postnatal care.

CORA MORSE, *Superintendent.*

BABIES' MILK FUND ASSOCIATION

Detroit

- I. Very small extent. Is supposedly done by Board of Health.
- II. Probably in one way or another 7 per cent or 8 per cent of the infant population is reached.
- III. Our work is carried on during the entire year.
- IV. Our work was started in June, 1911. We believe we have diminished our morbidity and mortality in the districts where we have been working. Cannot give statistics except that our last annual report shows mortality rate of about 4 per cent of the babies supervised by us and infant mortality of entire city is gradually diminishing.
- V. No definite connection with the Department of Health.
- VI. Our work is closely related to work of Visiting Nurse Association and Associated Charities and Michigan Children's Home Society.
- VII. and VIII. Prenatal work has been temporarily abandoned owing to impossibility of getting physicians to take charge of obstetric dispensaries.
- IX. We maintain five stations in our postnatal work
Instruction is given in nursing care, general instruction, which includes hygiene of mother and baby, sanitation, feeding, clothing, etc. Milk instruction, which is the demonstration of the formula for bottlefed babies and friendly visits of inquiry.
Conferences between doctor, mother and nurse are held tri-weekly; plan includes instruction of mothers in their own homes and nursing care of sick babies.
The sale of milk has been discontinued. Milk is furnished free only to those cases which are recommended by some other social agency than our own.
- X. Our staff consists of one medical director and four assistant doctors; one supervising nurse and five other nurses from the staff of the Visiting Nurse Association.
- XI. Our work is financed by private subscriptions.
- XII. The number of babies reached in districts where we are working has greatly increased, but we have not felt it wise to extend our work into new districts with the funds at our disposal. We feel that our work is constantly becoming better systematized and more effective.

ZOE LA FORGE, Supervising Nurse.

VISITING NURSE ASSOCIATION

Detroit

We affiliate closely with the Babies' Milk Fund Association, and the greater part of our baby-saving work is done through that organization. Our staff nurses are employed by them, and in the course of time we hope to have every member profit by the experience such cooperation affords.

The Visiting Nurse Association provides obstetrical service. During the last year we cared for 610 cases. Most of the babies were breast-fed. We are now planning a system of prenatal instruction as part of our obstetrical work, and the Babies' Milk Fund Association will have charge of the postnatal instruction.

The staff of the Visiting Nurse Association consists of 18 nurses, 14 of whom are supported and supervised by the Association; 2 by the Detroit Society for the Study and Prevention of Tuberculosis. The entire time of 4 nurses is given to the work of the Babies' Milk Fund Association and one to the work of the Jewish Institute Dispensary. Weekly meetings for the purpose of discussing problems which arise in the work of the two societies are held by a joint committee of the Visiting Nurse Association and the Babies' Milk Fund Association. These meetings have proved an efficient means of preventing overlapping and duplication of work.

LYSTRA E. GREITER, R. N., *Superintendent.*

CHARITY ORGANIZATION SOCIETY

Grand Rapids

We cooperate with the Baby Clinic conducted by the Blodgett Home for Children in the care of infants and the instruction of mothers, doing no such work ourselves excepting incidentally in connection with our regular visitors' work.

EVELYN GAIL GARDINER, *Secretary.*

CLINIC FOR INFANT FEEDING OF THE D. A. BLODGETT HOME FOR CHILDREN

Grand Rapids

- I. Each day we receive from the Board of Health through the mail the names and address of the births registered the day before. To these we send our circular on "Care and Feeding of Babies," which includes the announcement and invitation to our clinic.
- II. Not more than one-third of the babies are reached through our clinics, but we feel that we reach a larger percentage through the follow-up work in the homes and the education given through the press, and talks given at various times in school centers, literary societies, etc.
- III. Previous to this year our work has been carried on during the four summer months. We plan this year to continue the entire year.
- IV. The Board of Health finances, under our management, the equipment and running expenses of one clinic station, also the services of one nurse.
- V. We cooperate with all the Welfare Societies. They report sick and neglected babies who have no family physician in attendance.
- VI. Owing to inadequate nursing service we have not been able to outline any plan for prenatal work. We have furnished milk to

expectant mothers and given instructions to many. We hope to include this line of work later on.

- VII. Our work does not include obstetrical service.
- VIII. We have two Welfare Stations. Central Station, situated in a downtown district, accessible to several districts is the headquarters for the general management. The West Side Station is held in a room equipped for the purpose in St. Adelbert's schoolhouse, in the heart of a large Polish settlement.
- IX. We hold two clinics each week in each station. Doctors and nurses are in attendance. The mothers bring sick and well babies to each clinic. Each baby is weighed and prescribed for, and the mother is given talks by the doctors and nurses on the care of herself and baby. The nurse follows the case into the home to see that the doctor's orders are carried out, to give bed-side care to sick babies and to teach preventive illness in the care of milk, fresh air and cleanlines.
We teach home modification chiefly. We do some modification at the Central Station for special cases, and furnish milk free of charge where the family cannot furnish it.
Natural feeding is our greatest effort. This includes the proper care and feeding of the mother so as to give an abundant milk supply.
- X. The working staff consists of three nurses and four doctors. Each doctor has an assistant. We report our eye, ear, nose, throat and surgical work to specialists, who do this work free of charge in their office or hospital as required.
- XI. Our work is financed by private contribution. The Chamber of Commerce has paid the salary and carfare of one nurse for four months each year.

VIOLET LOVE HILL, (MRS. ROBT. G. HILL),
Superintendent of Clinic for Infant Feeding.

MINNESOTA

COMMITTEE ON INFANT WELFARE, DULUTH CONSISTORY, SCOTTISH RITE MASONS

Duluth

- I. Registration of births serves as a starting point for our work in enabling us to locate the infants in the different districts and to ascertain whether they were taken care of by a physician or midwife.
- III. Our work is carried on during the entire year.
- IV. The work was started in the year of 1911. We are unable to give statistics for the reason that the Department of Health has not completed the compilation of the infant mortality statistics.
- V. We have no connection with the Department of Health, except that we distributed inspected milk at one of the milk stations, which was located at the Masonic Temple during the summer months.

- VI. We are not affiliated with other welfare work in the city, but do cooperate with them as much as possible.
- VII., VIII., and IX. Our work is principally confined to postnatal work.

The general plan of our postnatal work is as follows:

Our welfare station is located at the Masonic Temple. Character of instruction given is infant feeding, general infant hygiene and the urging of maternal nursing.

During the months of June, July, August and September we had semi-weekly conferences between doctor, mother and nurse.

Our work includes instruction of mothers in their own homes, and we also have in one of the local hospitals a ward for sick babies, which is in charge of a special nurse. The ward is maintained by the Scottish Rite Masons. It also includes during the months of May, June, July, August and September, distribution of inspected milk at 7 cents a quart to those who are able to pay for the same. However, to those who are unable to pay the milk is distributed free of charge at the expense of the city.

- X. We have one doctor on our staff during the summer months and one nurse during the entire year.
- XI. The work is financed by the Scottish Rite Masons.

E. HEIKKILA, *Consistory Nurse.*

INFANT WELFARE SOCIETY

Minneapolis

1913

The Infant Welfare work for the past year was conducted along the following lines:

- III. Three fully equipped consultation stations were maintained all the year round. The stations are located in Settlement Houses, which in this city are located in the zones where the infant mortality is the highest. A physician and full-time nurse are in charge of every station.

All stations are equipped with milk depots. Home modification of milk is taught as much as possible. Most of the mothers attending pay for certified milk.

The organization has established a central down-town station to which nurses report and from which all literature and supplies are sent out. A paid secretary is daily in attendance.

A ladies' auxiliary is in the process of forming. This body will be responsible for the maintenance of the stations.

The organization is also planning to establish a baby register for the entire city. This is to be conducted through the central downtown office. Monthly mother's meetings are held throughout the year, and at stated intervals meetings are held for the expectant mothers, and form a part of the prenatal program carried on by the organization. The registration of births up to the present time has not served as a starting point for the work. Probably one-tenth of the infant population is reached by the organization.

The effect on the infant mortality through the efforts of this organization have been considerable. No accurate statistics are at present available, but will be at the end of this year.

V. and VI. The connection with the Department of Health is not as intimate and is not as satisfactory as it could be. The relation of the work of this organization with other welfare work of the city is very intimate and splendid cooperation exists.

VIII. and IX. The Society conducts both prenatal and postnatal work. Prenatal work has been carried on for the last six months. The instruction is given both in classes at stated meetings and to individual mothers in their own homes.

Obstetrical service is not provided, but the mothers are referred to the family physician or to the excellent obstetrical service of the university. Practically all of the mothers who have had prenatal instructions have found it possible to nurse their own babies. The postnatal instruction is given to the mothers at the Welfare Stations, in the homes, by the visiting nurses, and at the monthly mothers' meetings. The instruction consists of lectures and demonstration. The consultations are held bi-weekly in the different stations, and the days so arranged that a consultation is conducted every day of the week in some part of the city.

All ill babies are referred to the family physician, hospitals or the University of free dispensary. Milk is distributed only if the family is very needy, or if the mother is unable to understand and to carry out the home modification

XI. The work is financed entirely by private subscription and by membership fees in the organization. The organization has been the beneficiary of one large donation in the past year. Much of the larger program carried on this year was made possible through this donation.

F. W. SCHLUTZ, *Medical Director.*

MISSOURI

INFANT FEEDING CONFERENCE OF THE ST. LOUIS PURE MILK COMMISSION

May 1st—October 1, 1913

- I. The registration of births does not serve as a starting point for our work
- II. In the neighborhood of 4 or 5 per cent of the infant population has been reached by the work of our commission.
- III. Our work is carried on throughout the entire year
- IV. Our work was started in the spring of 1903; we were incorporated on February 26, 1904, and the first work began June 28, 1904. The infant mortality has declined almost every year for the past twenty years or more. It is very difficult to state exactly what effect the work of the Pure Milk Commission has had upon the reduction of infant mortality in

St. Louis for the reason that the decline in mortality set in many years before this work was under way. However, the decline has been very noticeable these past six or seven years.

- V. We have no connection with the Department of Health.
- VI. We include both prenatals and postnatal work in our activities.
- VII. We cooperate with the Children's Aid, Visiting Nurse Association and Washington University obstetric work.
- VIII. Our prenatal work is done by nurses who give instructions to mothers in their own homes. This work has been done for three or four years, and its effect on the health of both mother and child has been very encouraging. We do not provide obstetrical service.
- IX. For our postnatal work we have eight welfare stations where conferences are held weekly and bi-weekly. Four of these are on the north side and four on the south side. Last year, from May 1st to October 1st, we had a total of 271 conference days, with an enrollment of 612 babies; the total individual consultations between physicians and mothers numbered 2,523. Seven of these welfare stations continue through the winter. Besides the work done at the station, nurses visit the mothers in their homes, giving instruction on every point. Milk is both distributed and sold.
- X. We have ten doctors on our staff. The nurses are furnished by the Visiting Nurse Association.
- XI. The work is financed by public subscription.

A. S. BLEYER, *Chairman, Clinics Committee.*

ST. LOUIS CHILDREN'S HOSPITAL

- I. The registration of births does not serve as the starting point for our work.
- II. Our hospital reaches in the neighborhood of two per cent of the infant population.
- III. The work of the St. Louis Children's Hospital is carried on during the entire year.
- IV. Our work was first started on April 1st, 1910.
- V. We have no connection with the Department of Health.
- VI. We cooperate with the Social Service Department, the Visiting Nurse Association and the Pure Milk Commission.
- VII. The Social Service Department, with whom we cooperate, does prenatal work.
- VIII. (a) Instructions are given in personal and home hygiene; diet; regulation of work, exercise; clothing; care of breasts; preparation for home confinement; recognition of pathological symptoms.
- (b) The instructions are given by the "prenatal" nurse individually in the hospital dispensary and in the home.
- (c) This prenatal work has been carried on since May 1, 1912, to October 1, 1913.
- (d) We have reached 835 mothers.

- (e) We have proved a decrease of 26.4 per cent in infant mortality within the first month of life. Only had two cases of eclampsia, although many had pre-eclamptic symptoms when first registered. Where there were abortions previously in the instructed group, we had one-seventh as many.
- IX. For our postnatal work we have our own infant feeding clinic, where instruction is given by the physician, and there are bi-weekly conferences between the doctor, the nurse and the mother. The nurses also give instructions in the home on feeding, care of sick babies, etc. We both sell and distribute milk.
- X. We have one doctor on our staff, and we have the assistance of the Social Service Department, the Visiting Nurse Association and the Pure Milk Commission. Clinics are held twice weekly.
- XI. The infant work of the hospital is supported by voluntary contributions.

MRS. R. McK. JONES, *President*.

NEW HAMPSHIRE

INFANT AID ASSOCIATION

Manchester

- I. The registration of births does not influence our work in any way.
- II. This Association reaches about one-tenth of the infant population of Manchester.
- III. Our work is only carried on during July and August.
- IV. Our work was started July 1, 1912, since which time there has been a marked decrease in infant morbidity and mortality, but we have no statistics.
- V. We have no connection with the Department of Health except inspection of the milk supply.
- VI. Our work is entirely independent, having no relation to any other welfare work done in Manchester.
- VII. Our Association does no prenatal work.
- IX. We have one welfare station, holding the usual weekly conferences; our nurses also go into the homes and give daily instruction to the mothers on the care of the baby, as well as giving nursing care to sick babies. We distribute milk to those who are too poor to buy it, and sell it to such as can afford to pay.
- There are three doctors and nurses on our staff.
- XI. We are entirely dependent upon private donations for the financing of our work.

REMSEN VARICK, *Secretary*.

NEW JERSEY

THE VISITING NURSE ASSOCIATION

Elizabeth

A prenatal clinic was opened in August at the Elizabeth General Hospital and attended by one of our nurses five days each week; a babies' clinic at the same hospital is also attended by a visiting nurse, but the records of the clinic are in the possession of the hospital.

Three nurses are employed by the Association. Obstetrical cases are not attended at confinement, but are given after care.

The Association has only unofficial cooperation with the Board of Health and has nothing to do with the registration of births.

During the year the nursing staff has been entirely reorganized and a new system of records instituted so that next year it will be possible to compile a statistical report.

CORDELIA MRAVLAK, *Secretary*.

THE BABIES' HOSPITAL OF NEWARK

Organized and incorporated May, 1896.

The management is non-sectarian, consisting of a Board of Directors, who hold the property and administer the permanent funds; a Board of Managers, who collect and disburse the funds for current expenses, and supervise the household and training school; and a Medical Board, who control the medical and surgical work.

This hospital was designed:

1. To provide care and treatment for sick infants of the poor under three years, not suffering from any contagious disease.
2. To establish a school for the training of intelligent young women to care for the children of the better classes.
3. To furnish suitable food for the infants of indigent mothers, who have proved to be unable to nurse their little ones, and who can not properly prepare the milk at home, which is provided at cost to those who can pay, or free to the destitute.
4. To provide a place where physicians may study the diseases of infancy and childhood.

The capacity of the hospital is 35 cribs.

The extension work embraces three clinics a week at the hospital, and four consultation stations, located in settlement house, playground and public school, where infants are weighed and the mothers encouraged to nurse them if possible, and general instruction given by the doctor in charge as to management and care. A graduate nurse, speaking four languages, is in attendance at these consultations; she subsequently follows to their homes those in need of more definite directions, as well as those taking milk from the dispensary. She visits also all patients discharged from the hospital.

The support of the hospital is derived from subscriptions from directors and managers, voluntary contributions and a small city appropriation.

A new building is greatly needed, as the present one is entirely inadequate for the work, and it is hoped one will soon be in course of construction.

HENRY L. COIT, *Medical Director*.

CLARA E. WATKINS, *Superintendent*.

THE BABIES' HOSPITAL MILK DISPENSARY (NEWARK)

- I. The registration of births does not serve as the starting point for our work.
- II. Ten per cent of the infant population is reached by the work of our Association.

III. Our work is carried on during the entire year.

IV. Our work started in 1896.

Replying to inquiry regarding the effect it has had on infant morbidity or mortality: The mortality of cases treated in the hospital is probably reduced 60 per cent. In the social service work of the hospital, the viability records made by our scoring system show very accurately the effect of education and good milk. One hundred cases which were visited regularly by the nurse during the year showed that the average living prospect of these infants was only 16 per cent perfect and at the end of the year the average had been raised to 74 per cent, which represented an improvement of 58 per cent, or an advance of three-fifths toward a perfect normal condition.

V. We have no connection with the Department of Health.

VI. There is general cooperation between our work and that of other welfare activities.

VII. Our activities have been limited to postnatal work

VIII. We have seven consultations for mothers with infants, and three medical clinics.

IX. The instruction is given orally by physicians; and includes visits by nurse, distribution of educational pamphlets. Our work comprises weekly conferences between doctor, mother and nurse, instruction of mothers in their homes, nursing care of sick babies. It also includes the distribution or sale of milk.

X. Our staff consists of twelve physicians, three trained nurses, one post-graduate nurse, sixteen nursery maids.

XI. Our work is financed by voluntary contributions and a city appropriation to support ten beds in the hospital.

HENRY L. COTT, *Medical Director.*

C. E. WATKINS, *Superintendent.*

THE DIET KITCHEN OF THE ORANGES

Orange

The Diet Kitchen of the Oranges was organized April 13th, 1895.

We have two supply stations. At the main kitchen are held the consultation class for mothers and the "little mother's class" for teaching little girls the essentials of personal and infant hygiene; here also milk is modified for the babies, and milk and eggs are distributed to the sick poor daily.

At the Valley branch milk and eggs are also distributed daily.

Charges for the supplies are determined by the ability of patients to pay. We have two doctors and two nurses on our staff.

The League has divided the work in the Oranges into seven districts, two of which have been assigned to us.

A physician is in attendance one day a week at the consultation classes held at our two welfare stations.

Since last June our nurse has spent her entire time in the homes giving instruction to the mothers in every branch of infant hygiene. The results have been most gratifying, a large percentage of the mothers

now preparing the milk for their babies.

Out of 192 babies attending the consultation classes during the past year there were only four deaths.

Births occurring in our districts are reported to our nurse, she visits these homes at once and invites the mothers to the consultation classes.

We feel if the babies are started right much illness may be prevented.

Our Association has no department for prenatal work, but in many cases the nurse has given advice and instruction to prospective mothers.

Our work is supported by voluntary contributions.

ANNA T. STEWART, *Secretary.*

NEW YORK

NEW YORK ASSOCIATION FOR THE BLIND

Report of

The Committee for the Prevention of Blindness on its Work for Infant Welfare

SEPTEMBER 30, 1912, TO SEPTEMBER 30, 1913

Purpose, Scope and General Results of Work. The object of the Committee for the Prevention of Blindness is "to ascertain the direct causes of preventable blindness and to take such measures in cooperation with the medical profession as may lead to the elimination of such causes." The field of its activities is limited nominally to New York State, but the committee has always responded to requests for assistance from workers from other States and will continue to do so until a national organization exists to which such work can be referred.

The work of the committee during the year ending September 30, 1913, has, like that of the preceding years, consisted of investigation into the preventable causes of blindness and impaired vision; cooperation with various agencies and individuals in practical measures for the prevention of blindness; the support of such legislation as was believed would further this work; and the education of the public at large concerning these causes by means of the publication and distribution of literature, public speaking, photographic exhibits, lantern slides, magazine articles and the press.

The subjects considered by the committee have included ophthalmia neonatorum, midwifery reform, trachoma, lighting, industrial accidents and wood alcohol. A report upon the committee's work in connection with ophthalmia neonatorum and midwifery reform is herewith appended.

OPHTHALMIA NEONATORUM

Investigation. Figures recently collected by the committee from schools for the blind throughout the country show that out of a total of 2,327 pupils in 21 schools, 684, or 29.2 per cent of the pupils are needlessly blind from ophthalmia neonatorum; 88 of the 386 children admitted for the first time during the last school year are blind from ophthalmia neonatorum, thus showing that the percentage of needless blindness from this cause in schools for the blind continues about the same this year as for preceding years:

1912—88 out of 386 new admissions 22.7% blind from O. N.

1911—88 out of 415 new admissions 21.2% blind from O. N.

1910—84 out of 351 new admissions 23.9% blind from O. N.

It was found upon investigation of 108 cases of ophthalmia neonatorum reported from the various eye clinics in New York City to this committee that 62 were attended by physicians, 43 by midwives and three were emergency cases attended by neighbors. In 14 of the 62 cases attended by physicians a prophylactic against ophthalmia neonatorum was used at birth, and by 11 of the 43 midwives. Of eleven cases in which injury resulted, six lost one eye, two eyes were scarred, while three infants became totally blind. The cases of total blindness all occurred in the practice of physicians, while of the remaining nine, seven were physicians' cases and two were midwives'.

Legislation. The committee has supported the State Commissioner of Health in his successful application for a renewal of the grant in the Supply Bill of 1913, to make possible the free distribution of prophylactic outfits for the prevention of blindness from ophthalmia neonatorum. This appropriation which was diminished \$2,500 in the previous year was increased to \$5,000 in 1913.

Subsequent to a request made by this committee to the effect that all midwives be required to report redness and swelling of the eyelids with discharge from the eyes of new-born infants in their care, the New York City Department of Health amended its rules and regulations (June 3, 1913,) governing the practice of midwives to include the following regulation:

"22A. When a child delivered has or develops sore eyes, or any redness or discharge from the eyes, the midwife in attendance must at once report to the Department of Health the name and address of the mother and state the time when such condition of the eyes was first noticed."

The committee has assisted in the preparation of a model law for the prevention of blindness from ophthalmia neonatorum which was drafted by the Committee on Prevention of Blindness of the American Medical Association, for possible adoption in the various States of this country.

Data and information in regard to existing laws affecting the control of ophthalmia neonatorum in this and other States have been given to workers in Oklahoma, Kansas, Idaho, Oregon, Iowa and New Jersey. This assistance was sought preparatory to legislation in the States mentioned. This legislation was contemplated as a result of interests aroused by the statistical reports showing the prevalence of blindness from ophthalmia neonatorum throughout the country, which this committee issues each year and sends to superintendents of schools for the blind and to other workers.

MIDWIVES

Investigation. The committee has collected from State and City Boards of Health throughout the country reports upon the proportion of births which are now being attended by midwives. An estimate based upon these reports indicates that midwives attend about 40 per cent of all births.

The committee has made a study of State and country laws and city ordinances which are related in any way to the training, registration and control of midwives practising in this country. The following sum-

mary indicates the inadequacy of existing legal provisions, while correspondence with public officials having jurisdiction over this group of practitioners discloses deplorable ignorance on their part of the status and extent of this profession.

It was found that midwives are allowed by law to practice unrestricted in twelve States,* while there are no laws relating to their training, registration or practice in fifteen States.† In the remaining twenty-two States, where there are such laws, fifteen‡ require examination in addition to licensure. In no one of the seven States§ in which it is required that midwives shall be trained before examination and licensure are there recognized midwife training schools. The only training school for midwives under reputable auspices of which the committee is aware is the one connected with Bellevue Hospital, established in 1911 as a result of the efforts of the committee.

During the year, the committee's executive secretary has registered as a midwife with the New York City Department of Health, as have also several other members of the nursing profession. This was done as the initial step toward raising the status of the profession of midwifery through the enrollment of a superior class of women among its members.

At the first annual meeting of the American Association for Public Health Nursing, with Miss Lillian D. Wald as President, held at Atlantic City in June of this year, a section on Infant Welfare was created for the purpose of considering the subjects of the care and feeding of infants, prevention of blindness and midwifery. The executive secretary was appointed chairman of this section, with power to select sub-chairmen to deal with the respective subjects. It is believed that this action on the part of such an important nursing body will be productive of valuable results in the work for midwifery reform and the prevention of blindness.

The interest in midwifery reform in this country was evinced by the American Public Health Association made up of health officers and sanitarians from the United States, Canada, Mexico and Cuba. The executive secretary was invited to present a paper on the midwife problem at the annual meeting of this association held in Colorado Springs in September. As she was unfortunately unable to attend the conference her paper will be published in an early issue of the journal of the association.

During the past session of the Legislature the committee watched the progress of a bill "To amend the public health law, in relation to the practice of midwifery." Since the provisions contained in this bill were inadequate the committee was gratified that it did not become a law. It is the purpose of the committee to support or inaugurate during the next session of the Legislature, legislation necessary to secure the training, examination, licensure and control of midwives by State authority.

CAROLYN C. VAN BLARCOM, *Executive Secretary.*

*Alabama, Arizona, Arkansas, Florida, Georgia, Idaho, Kentucky, Maine, South Carolina, Tennessee, Virginia, West Virginia.

†California, Delaware, Massachusetts, Michigan, Mississippi, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Oklahoma, Oregon, Rhode Island, South Dakota, Vermont.

‡Connecticut, District of Columbia, Illinois, Indiana, Louisiana, Maryland, Minnesota, Missouri, New Jersey, Ohio, Pennsylvania, Texas, Utah, Wisconsin, Wyoming.

§Illinois, Maryland, Missouri, New Jersey, Ohio, Pennsylvania, Wisconsin.

THE NEW YORK CITY DIET KITCHEN ASSOCIATION

OCTOBER, 1912, TO OCTOBER, 1913

During the year the New York Diet Kitchen Association has conducted the work of its milk stations along the usual lines, and in addition has increased its staff of nurses maintained for educational and welfare work, and extended its efforts in prenatal work till all stations, except one, are now registering expectant mothers.

The one exception made at the request of the New York Milk Committee was of a station situated in a district where nurses of the Milk Committee were engaged in this line of work, and it was desired to retain the territory so covered for purposes of demonstration.

January 1st, 1913, one station was closed in a district where recently established municipal stations in the same region could cover the work, and both in the interests of cooperation and to prevent duplication of effort, it was decided to withdraw the Diet Kitchen station.

This action leaves eight stations that the Association is still supporting.

Originally established in 1873 to supply nourishing food to patients sick in their homes, the Association early took part in the crusade for pure milk, and for many years has made a feature of securing that for the babies attached to the stations, and since 1908 has been increasing the amount of its instructional work, so that for some years active work among the babies and mothers has been the most important part of its activities.

The Association is an affiliated member of the Babies' Welfare Association, and cooperates with the Department of Health and the baby and general welfare agencies of the city.

Each of the eight stations has a well defined district, arranged by the Milk Station Committee of the Babies' Welfare Association, and this district forms the basis for the work, new cases being secured by canvass and through cooperating agencies.

As notices of birth registration from the districts cannot be regularly supplied from the Department of Health, birth registration does not serve as a starting for the work.

During the past year 4,358 babies were under the care of the Association stations, and there were only 42 deaths, or less than 1 per cent from all causes, and of this number ten were due to digestive diseases.

The prenatal work, first definitely organized in one station in September, 1912, was taken up by four more stations in January, 1913, and in August two others began the systematic registration and instruction of expectant mothers, so that at the time of reporting all the stations with the exception of the one excepted for the reason previously given are regularly engaged in the prenatal work.

The Association does not provide obstetrical services, but as soon as a case is registered in a station, the station nurse puts the mother under the care of a doctor, maternity hospital or clinic giving services in the home, and cooperates with that institution or physician in carrying out instructions to the patients. At this time the Association nurses are receiving excellent cooperation from seven institutions and clinics, and physicians as well.

The nurse instructs the mothers in groups or singly at the stations in regard to proper care during pregnancy and visits in the homes for further instruction and supervision of health.

Up to date there have been 295 mothers registered at the stations, and of this number 116 have already been delivered. No deaths among the mothers; one abortion, history showed five previous abortions; two miscarriages from accidents; three babies died; one,—congenital heart disease; one,—taken from the hospital too soon against the doctor's wishes; one,—cause not ascertainable. While the general improvement in both mothers and babies has been very perceptible after prenatal care, the Association has not been engaged in the work long enough, perhaps, to offer figures of much statistical value, but in one direction the gain has been marked and deserves attention. Of the 113 babies, 99 were breastfed, and with the exception of the three who died, all these have been breastfed for periods ranging from three to nine months. Postnatal care included weekly conferences at the eight stations with doctors and nurses, instruction at station outside of conference hours by nurses, home instruction and nursing care of sick babies in emergencies, otherwise only until the babies can be otherwise provided for.

Milk is sold, or in some instances given away, at all stations.

Staff of physicians: 6 assigned by the Department of Health; 7 volunteer doctors. Nurses: 5, supported by the Association; 3 assigned by the Department of Health for weekly conferences during the winter, for all day during July and August.

The work is financially supported almost entirely by contributions and subscriptions, the city only appropriating \$500.00 yearly towards expenses.

MARIA L. DANIELS, *Superintendent.*

HEBREW INFANT ASYLUM New York City

The Hebrew Infant Asylum admits children from the time of birth up to the age of four years, accepting those who are not able to be cared for at home. At present, it has about 375 children, of which there are about 90 under one year of age and the same number between one and two years. In 1912 we lost 12 children, 5 under one year of age. The infants and children who either have no parents, or on account of poverty, or other causes, are unable to be cared for by their parents, are committed by the Charities Department to our institution for a period of months or years. In this way many of the infants are saved.

Connected with this institution there is a training school for nursery maids. The wards for the infants and smaller children are in charge of trained nurses. From time to time throughout the year, a wet nurse is employed.

The plant consists of a main building, with wards, play room, diet kitchen, infirmary, etc., a reception building for older children, comprising four floors which are completely isolated, and a new reception pavilion for infants, containing 12 cubicles modeled after those of the Pasteur Institute. All milk is thoroughly pasteurized.

ALFRED F. HESS, *Attending Physician.*

**INDUSTRIAL DEPARTMENT METROPOLITAN LIFE INSURANCE
COMPANY**

New York City

Through our nursing service in the year 1912, we gave visiting nurse service to 131,092 policyholders. Our statistics for the entire year have not been completed. For the first six months of 1912 we gave nursing service to 6,374 maternity cases. To these, a total of 50,794 visits were made, or an average of 12 visits per patient.

The maternity service until now has been somewhat experimental. In a number of cities we gave maternity service to all policyholders who desired it, the service being given to normal cases as well as to cases where complications arose. In other cities, the service was given only where there were complications. As a result of our experience, we have decided, beginning December 1st, to extend the service to include all normal maternity cases. This service, I may say, covers as a rule prenatal visits and such service as can be given by a visiting nurse.

The nursing service which we are giving is supplemented by the literature which we distribute, particularly our pamphlet, "The Child." The value of this pamphlet has been demonstrated in various ways. Recently a delegation, representing the New York Midwives' Association, requested that we change the wording in this pamphlet, in which the suggestion is made to our policyholders that if they expect maternity, they should have a physician or go to the hospital, instead of using a midwife. The committee claimed that as a result of the distribution of this pamphlet policyholders were no longer willing to accept the services of midwives.

Other instances have been brought to our notice in which mothers as a result of reading the pamphlet and realizing that improper service was being given to their infants, particularly as to the care of the eyes, have discharged midwives and engaged physicians.

LEE K. FRANKEL, *Sixth Vice-President.*

NEW YORK MILK COMMITTEE

- I. Our cases are referred to us by other agencies, and we do not search them out from birth registration. We do, however, use the birth record as a means of checking up the efficiency of our work.
- II. As our work is mainly educational and for the benefit of all classes of population, I would say that we reach the entire infant population. Our direct work is purely for the purpose of demonstration and deals with only a limited portion of the infant population.
- III. Our work is carried on during the entire year.
- IV. Our work was started in 1907.

Effect upon infant morbidity or mortality: Since the establishment of the infant milk stations in this city under our direction the infant mortality of the city has been lowered from 125.6 per one thousand births in 1910 to 105.3 in 1912. If the decrease maintained so far this year is held for the

remaining two months the rate for this year will be about 100. Among the mothers handled by our prenatal corps in the experiment just finished, we have reduced the deaths for infants under one month of age 29.9 per cent as compared with the rate for the Greater City, and the stillbirth rate among those mothers has been reduced 17 per cent.

- V. Connection with the Department of Health: Our committee has an arrangement with the Department of Health whereby we cooperate with them in the work of conducting infant milk stations, by inspecting the stations from time to time and making suggestions as to their management. We also turn over to the Department of Health results obtained from our work, and the Department has adopted our methods in establishing and conducting milk stations, and in carrying on prenatal work.
- VI. Relation to other welfare work: The Milk Committee was one of the promoters of the Babies' Welfare Association, which is a federation of all the agencies in this city interested in infant welfare work, including the Department of Health. Through this federation we cooperate with all the other agencies in the field, thereby avoiding duplication of effort.
- VII. The activities of our Association include prenatal as well as postnatal work.
- VIII. Plan followed in prenatal work:

Character of instruction: The mothers are placed under the influence of our prenatal nurses as early in pregnancy as possible. They are given instruction in practical hygiene and in the care of infants. They are taught how to keep their homes in a sanitary condition, and how to prepare for the birth of their baby.

The instruction is given by a visiting nurse in the home to the individual mother. This nurse makes periodical visits and calls on the committee's physician when necessary in emergency cases.

This work has been carried on since August 1, 1911.

There have been 2,153 different mothers enrolled in that time.

We do not provide direct obstetrical service. We cooperate with other agencies. However, in referring our cases to them for obstetrical care we watch these cases to see that proper care is given.

Detailed figures of our work are as follows:

NEW YORK MILK COMMITTEE

STATISTICAL STATEMENT OF PRENATAL WORK FOR PERIOD

AUGUST 1, 1911, TO SEPTEMBER 1, 1913

Total number of cases.....	2,153
Total number of mothers supervised.....	2,150
Total number of mothers died.....	3
Total number of living births.....	2,102
Total number of stillbirths.....	86
Total number of babies born.....	2,188
Stillbirth rate per 1,000 living and stillbirths.....	39.3
Total number of deaths under 1 month.....	60

Death rate under 1 month per 1,000 living births.....	28.5
Babies entirely breastfed	1,901 93.09%
Babies mixed fed	78 3.81%
Babies artificially fed.....	63 3.08%
(Number of pairs of twins.....	34)
(Number of sets of triplets.....	1)
New York Milk Committee death rate under 1 month..	27.4
New York City death rate under 1 month.....	38.2
Percentage reduction	29.9
If the Milk Committee's rate had prevailed throughout the entire city during 1913, to date, it would have meant a saving of 1,045 infant lives.	
New York Milk Committee stillbirth rate per 1,000 births (living and still).....	39.3
New York City birth rate per 1,000 births (living and still)	47.6
Percentage reduction	17.0

As the New York Milk Committee is positive as to the number of stillbirths which have occurred in their work, the comparison of its rate with that of the reported stillbirths of New York is hardly fair, as it is estimated that fully 50 per cent of the stillbirths which occur in New York are not reported.

Estimating on the basis that 50 per cent of the stillbirths are not reported, if the stillbirth rate of the committee had prevailed throughout New York City during 1912 there would have been a saving of 1097 lives. Adding to this the number of preventable deaths under 1 month, the extension of the milk station work would have meant a saving of 2,142 lives.

Prenatal work is an extension of Milk Station work.

IX. Plan followed in postnatal work:

Our direct postnatal work at present is confined to a continuation of our prenatal cases until the end of the first month of the baby's life, during which time we instruct and direct the mother in her home in the care of the baby. We have running nine stations for this work. At none of these stations have we distributed milk, as we turned our milk stations over to the Board of Health on the completion of our demonstration with them in 1911. We are now running one of our stations as a general health centre, where we deal with all the family problems.

Weekly conferences are held at the station by the doctor, mother and nurse. Instruction is given to mothers in their homes, and nursing care is given in emergency cases.

X. Staff:

We have one paid doctor, and nine paid nurses on our staff. We have in addition to these a volunteer doctor and two advisory physicians.

XI. Our work is financed by voluntary contributions.

In addition to the above work we do a great deal of indirect work by conducting a series of lectures around the city on the milk supply and care of the babies. We also issue a great deal of literature for the use of mothers, and contribute a large part of the expenses of conducting the Babies' Welfare Association's Clearing-House.

GARRET SMITH, *Secretary.*

HEALTH BUREAU**Rochester, N. Y.**

- I. The registration of births is used as a basis for the baby-saving work of the Bureau.
- II. About 20 per cent of the approximately 6,000 infant population is reached by the work of the visiting nurses of the Child Welfare Stations during July and August only.
- III. and IV. This work was started in 1897.

The work is now and always has been carried on by the Bureau of Health.

- VII., VIII. and IX. Up to the present time there has been very little prenatal work.

We have 10 Child Welfare Stations. There are two nurses in each of three stations and one nurse in each of the other seven stations.

We confine our instruction almost wholly to the home, because we believe that the work of the nurse is to teach the mother in the home.

We have no weekly conferences.

Milk, with an average count of under 20,000 per c. c., is sold at cost.

- XI. Our work is financed by the Bureau of Health.

Last season our nurses visited 934 families, in which there were 2,547 children under 14 years of age and 174 over 14. Of the 952 babies visited, 71 were taken to the Infants' Summer Hospital and 49 to other hospitals and dispensaries. There were 21 deaths.

GEORGE W. GOLER, M. D., *Health Officer.*

THE INFANT WELFARE COMMITTEE OF THE ASSOCIATED CHARITIES AND CHURCHES OF SYRACUSE

Early in June, 1913, the president and secretary of the Associated Charities appointed a committee to organize an Infant Welfare Association in Syracuse, which should establish infant welfare stations and conduct the work of education and instruction in saving the lives of babies. The committee met for the first time on June 19th. It was made up of Miss Mary Jenkins, Mrs. Dana C. Hyde, Mrs. Albert P. Fowler, Mrs. Joseph C. Palmer, secretary and treasurer; Mr. Arthur Costello, and Dr. Joseph C. Palmer, president, who composed the active members of the Association. As associate members were enrolled many individuals and organizations who generously contributed to the carrying on of the work. These numbered about one hundred and eighty, and among them were included The Syracuse Bureau of Health, which donated the services of five school nurses—Miss Anna Scott, Miss Bertha McChesney, Miss Leilia Lennox, Miss Louise Cramp and Mrs. Catherine Quinby—who worked faithfully and zealously through the hot summer months, and to whom much of the credit of the first season's achievements is due. The *Syracuse Herald*, which, after itself making a generous contribution, was untiring in its efforts in raising funds and so broadening and enlarging the scope of the work; the Board of Education, which gave the use of rooms in the two schools, where stations were established; the officers and directors of the National Bank of Syracuse; the Solvay Guild; the Open Air School Aid Soci-

ety; the Young Men's Hebrew Association of Syracuse; the Syracuse Brewers' Exchange; the People's Ice Co.; the E. I. Rice Ice Co.; a number of church societies and clubs.

Especial mention should be made of the physicians comprising the medical staff, who gave freely of their time and efforts. They were most faithful in their regular attendance and by conducting the physical examinations, by directing weighings and by prescribing feedings, contributed largely to the success of the undertaking. Among these were. Dr. Philip Potter, Dr. Larned, Dr. Domser, Dr. Meller, Dr. Blum, Dr. Wright and Dr. Geiger, alternate.

The thanks of the committee are also due to Dr. Wynkoop and Dr. Foreman, who very kindly consented to direct the work in August during the absence of the president, and to Dr. Mercer and Dr. Johnson, who acted as consultants.

The first welfare station was opened on June 24th at the Emma Willard School, near the corner of Grape and East Adams Streets, which is said to be the centre of the Jewish population of Syracuse, which in 1910 was somewhat over eight thousand. A second station was opened at the Townsend School, at the corner of Townsend and Ash Streets, which is near the heart of both the German and Italian colonies, the former numbering about thirty-eight thousand, and the latter about sixteen thousand. Both stations were closed on September first. The detailed report follows:

Total amount certified milk dispensed.....	4,847	quarts
Total amount inspected milk dispensed.....	7,593	"
Total amount milk dispensed.....	12,440	"
Total amount ice used.....	19,135	lbs.
Total number of visits by the nurses to the homes....	841	
Total number of welfare station days.....	123	
Total number of homes scored.....	94	
Highest percentage given on any score.....	100	per cent
Lowest percentage given on any score.....	26	"
Average	68.1	"
Greatest improvement shown on re-scoring form.....	56 to 81	"

	Adams	Townsend	Total
Number of cases registered.....	230	243	473
Babies breastfed	36	31	67
Babies bottlefed	101	154	255
Babies on mixed feeding.....	28	13	41
Expectant mothers without babies.....	3	8	11
Cases registered, no milk supplied.....	48	36	84
Applications refused	14	1	15
Number dropped from roll.....	41	73	114
Regular attendants	115	48	163
Very regular attendants	12	80	92
Number of cases sent to hospital.....	8	0	8
Number of cases sent to Visiting Nurse Camp..	3	0	3
Number of cases sent to Syracuse Free Dispensary	3	0	3
Number of cases died.....	2	1	3
Total number expectant mothers.....	6	9	15
Mothers attended at birth by midwives.....	4	35	39
Babies under six months of age.....	78	69	147
Babies from 6 to 12 months of age.....	65	68	133

	Adams	Town- send	Total
Babies from 12 to 18 months of age.....	58	50	108
Babies from 18 to 24 months of age.....	24	30	54
Babies over 2 years.....	5	22	27
Average age	9 mos	9 mos	9 mos
Number of boys.....	132	110	242
Number of girls.....	101	109	210
Number of patients receiving milk gratis.....	21	107	128
Number of patients receiving milk with partial payment	172	75	247
Number of patients receiving milk with full payment	5	2	7
Average amount paid for milk per quart.....			.02¾
Number of Jews	180	5	185
Number of Italians	7	199	206
Number of Germans	0	20	20
Number of Negroes	13	0	13
Number of Americans	20	29	49

TREASURER'S REPORT

<i>Receipts</i>		<i>Disbursements</i>	
Contributions	\$1,897.78	Printing	\$37.75
Rebate on milk.....	345.73	Supplies	31.00
Sale of milk.....	307.20	Milk	1,286.09
		Cleaning	42.75
Total	\$2,550.71	Cartage	5.25
Disbursements	1,464.58	Screens	6.00
		Photographs	9.50
Balance on hand.....	\$1,086.13	Stationery	3.67
		Signs	22.65
		National Society fee...	5.00
		Home-made ice boxes..	2.80
		Incl.	12.12
			<u>\$1,464.58</u>

JOSEPH C. PALMER, M. D., *President.*

THE BABY WELFARE COMMITTEE

Utica

The committee of eight members which conducted the Utica Babies' Pure Milk and Health Station was reorganized in the spring of 1913 under the name of The Baby Welfare Committee of Utica, and its membership increased to fourteen. A campaign for funds was begun in May, through private subscriptions, and at the end of June this was supplemented by placing four dozen quart milk bottles in the drug and dry goods stores bearing placards headed "Do It For The Baby" and asking people to put their spare pennies in the bottles. From the subscriptions the committee obtained \$645.73; from the milk bottles, \$226.90, and this with a balance in the bank of \$66.01 gave a working fund of \$938.64.

The committee opened two milk stations on July 1st, the method employed the year before of using the domestic science rooms being again adopted. The staff consisted of a medical director, two physicians in charge, three attending physicians and two visiting nurses. The stations closed on September first. In the two stations there was a total enrollment of 382. There were enrolled at the clinic 250. Two hundred and seventy patients were supplied with 5,335 quarts of milk and the nurses made 1,608 visits to the homes. There were in all nine deaths, most of them among babies brought when moribund or attending but once. The physicians of the city took greater interest in the stations than the year previously, 29 physicians referring 118 babies to the station for the milk. The milk used was from a model dairy and was practically equivalent to a certified milk, and owing to the special rates at which the committee sold the milk it was possible to dispense it at the rate of six cents a quart. The milk was sold in pint and quart bottles, the nurses instructing the mother in the modification at the homes.

The total expense of running the two stations for the two months of the summer was \$462.44, thus leaving the committee at the end of the season with a balance of \$476.20. It will thus be seen that the committee expended less than half of the money donated for the purpose of conducting the summer stations.

It was then voted to continue the stations, or at least one throughout the winter. Much difficulty was experienced in obtaining proper quarters, but by the middle of October the Utica Park Board offered the use at whatever hours required of a new public bath house in the Italian quarter, the dressing rooms of which are ideally arranged for a milk station and clinic. The winter station was opened on October 15, the nurse being in attendance daily from eight to ten to dispense the milk, and the physician holding clinic two afternoons a week. The expense of this is something below one hundred dollars a month.

Immediately on opening the winter station the nurse took up prenatal work in a small way. The winter station, though not so largely patronized as the summer stations were, has proven decidedly successful, and the prenatal work is spreading rapidly.

In the matter of educational work, the nurse takes every opportunity available to educate not only the mothers on her lists, but the neighbors as well. The members of the medical staff have delivered lectures in schools, factories and to the Camp Fire Girls on baby welfare, and it is hoped that within a few weeks a number of Little Mothers' Leagues will be organized.

The Board of Health statistics for the year, though not showing any reduction in the infant mortality for the year, show a decidedly lowered infant death rate during the months when the stations were open, the high rate for the year being due to an exceptionally heavy infant mortality during the first four months of the year, before the committee had undertaken its work. The summer infant mortality for 1913 was 22 per cent lower than for 1912.

T. WOOD CLARKE, *Medical Director.*

NORTH CAROLINA

STATE BOARD OF HEALTH

The work that our Board is doing along the lines of preventing infant mortality is a part of the general educational work of this

Board. We issue pamphlets and leaflets, and also have had a great deal to say in our regular press service on the subject of infant mortality.

I recognize the importance of the work of the Association for Study and Prevention of Infant Mortality, and that, with the single exception of tuberculosis, it is dealing with the greatest factor in the high death rates of our country.

W. S. RANKIN, M D., *Secretary.*

OHIO

THE BABIES' DISPENSARY AND HOSPITAL Cleveland

- I. All birth registrations are submitted to us and all cases within the area of our work are investigated by the nurses.
- II. We reach about one-fourth of the registered babies under one year of age.
- III. Our work is carried on throughout the entire year.
- IV. Our work was started July, 1906. Both infant morbidity and mortality has been lowered. Of the total mortality among the babies under one year, only one-ninth of the number were registered at the dispensary. Of this number the greatest mortality was among those who were brought to the dispensary in a dying condition.
- V. The medical director of The Babies' Dispensary is director of the Bureau of Child Hygiene. The superintendent of The Babies' Dispensary is superintendent of nurses of the Bureau of Child Hygiene.
The Babies' Dispensary supplies milk for the Board of Health dispensaries and the Board of Health Prophylactic Dispensaries send their babies to the Central Babies' Dispensary.
- VI. There is a close cooperation between this Association and other welfare work in the city.
- VII. We include prenatal work only to a limited degree. One branch dispensary has regular classes. The nurses give talks to the mothers in the district. Results have been seen in a marked improvement in the mothers' care of their babies, especially in nursing of the babies for a longer period of time.
- VIII. and IX. We have 14 Board of Health Prophylactic Dispensaries.
One central dispensary for ill infants.
Instruction is given in general hygiene and special individual care.
Individual talks are given to the mothers by physicians in the dispensary and nurses in the home and nursing care of the sick babies.
Our work includes the distribution and sale of milk.
- X. Our staff consists of physicians, 14 Board of Health; 6 Central Dispensary. Nurses, 32 Board of Health; 5 Central Dispensary.
- XI. We depend upon private contributions for our support.

H. J. GERSTENBERGER, *Medical Director.*

THE VISITING NURSE ASSOCIATION OF CLEVELAND

All infant welfare work in Cleveland is done through the special branches, i. e., all prenatal work is done through the Maternity Association and all post-partum work by the Babies' Dispensary and Hospital, with the exception of a very few cases, comparatively speaking, which we handle for private physicians and which are really not in a sociological class.

BLANCHE SWAINHARDT, *Acting Superintendent.*

THE VISITING NURSE ASSOCIATION OF CINCINNATI

THE CHILDREN'S CLINIC

The "Children's Clinic" of the Ohio Miami Medical College of the University of Cincinnati, has been in existence twenty-five years, and was until three years ago conducted just as the other clinics of the college were—regarded, we may say, purely as a means of instruction.

Children under fourteen years of age might come for medical treatment, but the child as an individual of the family as a whole received but scant consideration.

For a number of years the Board of Health has during the summer months established throughout the city stations for the distribution of pure milk for infant feeding.

In 1909 through the physician, then health officer, one of these stations was opened at the "Children's Clinic," a deaconess volunteering to give two hours each day that the milk might be wisely distributed.

In January, 1910, Dr. B. K. Rachford, pediatrician in charge of the Children's Clinic, seeing the wonderful possibilities of the clinic, was able to interest one of Cincinnati's public-spirited women to the extent of furnishing funds sufficient to employ a graduate nurse to superintend the distribution of the milk and to be present during clinic hours. Through this fund it was also possible to sell the milk at three cents a pint, and in cases of destitution and real need to give it free of cost. This policy has held until the present time; however, it has often seemed that it might be wiser and, perhaps, a better plan, if the milk were sold at four cents, the price paid for milk at any grocery store, or even for four and one-half cents, the actual cost of the certified to us, the money going each month to make up a heavy deficit might thus be saved and used in furthering the work along more helpful lines, and better still, the milk might then be valued more for its true worth than because it is cheap, as I fear it oftentimes is, that which is too easily acquired, as we all well know, is but seldom appreciated, and what family is not better for having made sacrifices for its younger members, and so, beginning November 1st, I've been told we may try this theory out, and if the work continues to flourish with the milk at four cents—four cents it will remain.

In January of 1911 the nurse was put on full time, adding to her original duties instruction in the homes. At this time cooperation with the Cincinnati Maternity Society was established, all babies being referred by the nurse of the Maternity Society at the time of dismissal to the clinic nurse, and given what supervision was possible for one nurse to give.

Incidentally, the work of the Maternity Society has grown materially since that time. Two nurses are now assigned and excellent prenatal care given all cases from the time of their acceptance. Normal cases are visited daily for ten days after delivery, and usually twice between then and the end of the month, when they are dismissed to us.

Through the clinic many of these babies have been kept on breastfeeding at great odds. In a number of instances milk has been supplied for the mother's own use when no other solution of the problem seemed possible.

The nurses of the Maternity Society cooperate so closely with us of the clinic—we being all of the staff of the "Visiting Nurse Association"—that our work is greatly simplified by their instructions preceding ours. We have the confidence of these mothers from the beginning.

The Social Service Department of the City Hospital also reports to us babies under two years upon dismissal, especial stress being put upon any case needing feeding supervision.

In February, 1912, a second nurse was added to the clinic staff, and since May last we number three.

To the clinic, of course, come any children under fourteen years. This is made necessary by the fact that none of our hospitals have out-patient departments, but through the Visiting Nurse Association we are able to confine our work almost exclusively to babies; older children who need care in the home are reported to the Visiting Nurse Association and cared for by the nurse in whose district the case may be.

In November, 1912, we opened our first Infant Welfare Station in the basement of Christ Episcopal Church, this for babies under two years of age and prophylactic only, sick babies requiring more than a feeding formula being referred to the main clinic.

One of our best clinicians volunteered to conduct the weekly conferences, giving an hour each Thursday afternoon. The nurse working in that district was in charge. On conference day she had the mothers bring the babies in early and made an effort to have all weighing done and charts in order before the doctor's arrival that she might then be able to go over each case with him.

The distribution of certified milk from here was simplified by the cooperation of the company supplying milk to the clinic. One of their branch stores was but a block distant and tickets might be redeemed here that were sold by the nurse at conference in numbers sufficient to cover a week's supply, and at four cents a pint.

The work of this station proved interesting and successful, but owing to the fact of an older agency having for several years conducted a milk station through the summer months in this same neighborhood, we closed this station early in June.

Through the courtesy of the Board of Education we immediately opened another station in a public school building in the lower West End—a most congested and destitute section of the city.

The work here is conducted identically as it was in the first station, and again a branch store of our milk concern is quite near.

During the summer a nurse was assigned to us by the Health Department to work from this station; both she and our nurse who is in charge did excellent work here during an unusually hot summer.

The attendance at this station has from the first exceeded the attendance had at the other, owing in a great measure to the congested locality. One hundred and seven individual cases are now registered here, and the total attendance to date is three hundred and twenty-seven.

Twelve clinicians constitute the medical staff at the main clinic, with Dr. B. K. Rachford as director. The services are divided into terms of four months, six physicians on each service.

Two are present each afternoon from four o'clock until six, if necessary, but no patients are admitted after five o'clock.

Senior students from the college are assigned to the clinic, and the splendid opportunity for observation and instruction is perhaps as far reaching in its benefit to humanity as the welfare work of physicians and nurses.

A most valuable asset to our work during the past year is a woman physician, a recent graduate, working voluntarily as visitor.

We now feel this so indispensable that in a short time we hope it may be established as a permanent position with salary attached.

Just a word as to records, for without them we know that work, however good or worthy it may be, lives but today; however, when workers are few, it is not always easy to decide between actual work and records, when it is not possible to give accurate attention to both.

As yet our records leave much to be desired, but out of chaos is slowly evolving a system that I think may in time give facts and figures of lasting value. The temperament of a nurse is seldom that of a good bookkeeper, and until work of this sort is sufficiently financed to make possible a purely clerical worker, all things cannot be hoped for in the matter of records, and quite as much patience as zeal is demanded of pioneers everywhere.

ADA S. STOKES, *Supervisor of Nurses.*

PENNSYLVANIA

THE CHILD FEDERATION OF PHILADELPHIA

(Formerly The Child Hygiene Association)

The Child Committee, the forerunner of the Child Hygiene Association, was organized February 26th, 1912. On February 27th, 1913, it was reorganized with the title "The Child Hygiene Association." Its work as heretofore related entirely to the study and prevention of infant mortality. The activities pursued by the Association should be classed as:

- (1) Research work
- (2) Educational work

A Baby Saving Show was conducted in Horticultural Hall in 1912 with an attendance of 67,507 people. Eleven neighborhood baby saving shows have been conducted with a total attendance of 124,739 people.

A report has been printed, showing the method and procedure followed in the organization and operation of the baby saving show. This report has been sent to medical men, health officers and social workers all over the world. Active work has been carried on with the Department of Public Health and Charities. This work has been done by means of conferences, revising of literature published by the department, and advice. Surveys have been made or are under way, covering:

- (1) Municipal recreation piers
- (2) Municipal nurses
- (3) Municipal out-of-door physicians
- (4) Division of child hygiene

Other surveys have been made, covering:

- (1) Hospital provisions for infants and children
- (2) Day nurseries
- (3) Ice cream and candy venders

A pamphlet, entitled "The Care of the Baby," has been published and widely circulated. The past summer a Summer Baby Saving Show has been conducted in the City Hall. The estimated attendance of this show is 31,200 people. Thousands of copies of health literature have been distributed. Lectures on health questions have been given.

Two model Little Mothers' Leagues have been conducted during the past summer.

On September 30, 1913, the Child Hygiene Association received its charter as the Child Federation. From now on the work of the Association will be vastly widened. The entire work of the Association has been done and will be done by volunteers.

ALBERT CROSS, *Managing Director.*

CHILDREN'S AID SOCIETY OF PENNSYLVANIA Philadelphia

The following is a brief statement of the operation of the departments of the Children's Aid Society of Pennsylvania, which has to do with the care of young infants.

The Children's Aid Society of Pennsylvania maintains a special department to prevent the separation of destitute mothers from their children. In 1912 the applications included 262 women with children cared for in the Department for Women with Children, 238 mothers each with one child, 8 with two children, and 16 without children. For abandoned infants and for others whose mothers are for some reason unable to nurse them, the Society has established a system of wet nursing. We give below a brief account of the work done during 1912.

The Weekly Roster of the medical organization of Philadelphia for March 30, 1912, made the following announcement of the work of the Children's Aid Society in securing wet nurses for neglected children.

"In addition to many other useful public functions, a directory and registration bureau for wet nurses is being established by the Children's Aid Society of Pennsylvania in its building, 419 South Fifteenth Street. The Society has undertaken this work in order to secure wet nurses for young babies for whom it is asked to provide such care on the recommendation of doctors connected with hospitals and charitable agencies. In addition, the Society hopes to keep on hand a list of certified wet nurses who may be employed by doctors for their private patients. The wet nurses and their babies are examined by a doctor and no one will be recommended who has not passed the various tests required to provide every safeguard for both the wet nurse and the baby. When two babies are being cared for by the same wet nurse precautions are taken to see that both are properly nourished. The management will be glad to have doctors refer to the above address any women who desire to obtain a position as wet nurse. Assistance is also solicited in helping to make known the existence of this directory and registration bureau. Further information can be obtained by communicating with the Society at the above address."

In April, 1912, at a joint meeting of the Philadelphia Pediatric Society and the Philadelphia Obstetrical Society, a resolution was passed

endorsing the effort of the Children's Aid Society, a Society to establish a directory and registration bureau for wet nurses.

Before undertaking this new work the Children's Aid Society held a number of conferences attended by representatives of various hospitals and charitable agencies dealing with young infants. This new department was really established in response to their requests and in cooperation with these agencies.

From March 1, 1912, to the end of the year a total of 31 nursing babies were received and cared for. Their average age when received was three months. Seventeen of these came from the alms house at Blockley through the Department of Public Health and Charities, and included babies abandoned on the street by mothers, and others whose mothers had died or were sent for some reason to a public institution on account of physical or mental defects. Seven infants were taken through the social service department of hospitals on account of the death or illness or other incapacity of the mother to nurse and care for her own baby; one was received from the United Hebrew Charities because the mother had died; another motherless infant came from the Coal Township Poor District of Northumberland County; while four were received from parents on account of the physical condition of the mother.

At the close of the year 1912, of the 31 infants received in this department, 12 were with wet nurses. The average length of time these 31 infants remained with wet nurses was four months, and the average gain in weight was three pounds and two ounces. Some of these infants were cared for temporarily and eventually returned to their mothers, while others were transferred to our country boarding homes or placed with a view to adoption. A few had to be returned to hospitals on account of illness, and 3 died in our care, having been in a very delicate condition when received.

The experiment has shown the value of wet nursing in the reduction of the death rate. It was successfully tried for many of these babies as a last resort after other methods of feeding had failed to improve their condition. Some of the babies were in such a delicate condition that it is altogether probable that they would not have survived except for this method of care. However, there is a question as to the extent to which the needs of the community can be met by boarding out infants in homes of wet nurses. Apparently there is an important field for the use of wet nurses by hospitals and institutions. The Children's Aid Society is chiefly interested in helping to establish this method as far as possible for foundlings and other delicate infants whose mothers are physically unable to care for them.

In addition to this work, the Children's Aid Society maintains a boarding-out department for infants after they have passed the nursing stage, and also for older children.

EDWIN D. SOLENBERGER, *General Secretary.*

RHODE ISLAND

PROVIDENCE DISTRICT NURSING ASSOCIATION CHILD WELFARE SERVICE

The Providence District Nursing Association has six nurses specially employed in child welfare work all the year round. One or two additional nurses are employed during the summer. The work was started as a special service in 1908.

Prenatal work is not done as yet as a special branch, but much instruction and advice is given to pregnant mothers.

There is close cooperation with the various agencies dealing with children, particularly the Rhode Island Hospital, the Lying-In Hospital and the City Board of Health.

All babies leaving the infant ward of the Rhode Island and all mothers leaving the free ward of the Lying-In Hospital are automatically visited by the nurses, while all licensed boarding houses for babies are regularly inspected and visited by the nurses at least once a week at the request of the Board of Health.

All mothers delivered by midwives are visited by a nurse employed by the City Board of Health and the mothers needing further instruction are handed on to the children's nurses of the Providence District Nursing Association.

During the past year 2,534 cases were visited and 20,149 visits were made. This number includes children up to five years of age, though about three-fifths are infants under two.

Instruction is given by the nurses in the homes, at clinics and well babies' consultations and in school talks to mothers.

Obstetrical service is given by the Providence District Nursing Association, but by other nurses than those doing welfare work.

There are, besides the hospital clinics, three well babies' consultations held weekly and one for sick and well babies. A doctor is present and instruction is given by both doctor and nurses, baby clothes being shown. No milk is distributed or sold.

The death rate for children under five from 1908 is as follows:

1908.....	1,100
1909.....	1,079
1910.....	1,179*
1911.....	921
1912.....	908

The nurses reach about one-twelfth of the children of the city under five. The work is financed by voluntary contributions.

* Epidemic of infantile paralysis.

MARY S. GARDNER, *Superintendent.*

TEXAS

HOUSTON SETTLEMENT ASSOCIATION

The Houston Settlement Association has a summer camp for sick babies. Forty-six babies were cared for during the four months the camp remained open.

MRS. FRANK ANDREWS, *First Vice-President.*

VIRGINIA

BOARD OF HEALTH

Richmond

- I. The registration of births is of very great value in the work of this department.
- II. During 1912 nearly 40 per cent of the infant population of Richmond have been visited and cared for by our nurses.

- III. This work is carried during the entire year.
- IV. The Department of Health first undertook this work in March, 1910.
- VII. We include only a limited amount of prenatal work with our postnatal care.
- IX. We have no welfare stations. Visits are made by the nurses to the mothers in their own homes, where instructions are given on the care of babies, as well as nursing care of sick babies. We do not distribute or sell milk
- X. There are five nurses on our staff. We do not supervise ill babies, not regarding this as strictly health department work. We have no doctor in this splendid work. Our medical department is always available, however.
- XI. The work is financed by the city.

E. C. LEVY, M. D., *Chief Health Officer.*

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

MEMBERSHIP LIST 1918

Honorary

France

Bertillon, Dr. Jacques.....Paris

GENERAL MEMBERSHIP

LIFE MEMBERS

Ford, Miss Stella D., Detroit, Michigan
Gitchell, Miss Katherine, Akron, Ohio
Hanna, Mr. and Mrs. H. M., Cleveland, Ohio
Holt, Dr. L. Emmett, New York City
Knox, Mrs. J. H. Mason, Jr., Baltimore, Md.
Knox, Miss Katherine Bowdoin, Baltimore, Md.
Knox, J. H. Mason, 3rd, Baltimore, Md.
Mellon, Mr. A. W., Pittsburgh, Pa.
Oliver, Mr. Wm. B., Baltimore, Md.
Shevlin, Mrs. Thomas, Minneapolis, Minn.
Volker, Mr. Wm., Kansas City, Mo.
Wade, Mr. and Mrs. J. H., Cleveland, Ohio
White, Mr. R. J., Baltimore, Md.

AFFILIATED SOCIETIES

Babies' Dairy Association, New York City
Babies' Dispensary Guild, Hamilton, Ontario, Canada
Babies' Dispensary and Hospital, Cleveland, Ohio
Babies' Hospital, New York City
Babies' Hospital, Newark, N. J.
Babies' Hospital Milk Dispensary, Newark, N. J.
Babies' Milk Dispensary, Buffalo, N. Y.
Babies' Milk Fund Association, Detroit, Michigan
Babies' Milk Fund Association, Louisville, Kentucky
Baby Welfare Committee, of Utica, N. Y.
Baby Welfare Section of Civic Club of Cumberland, Md.
Baltimore Association of Jewish Women, Baltimore, Md.
Berlin Mills Company's District Nurse, Berlin, N. H.
Bureau of Charities District Nursing Committee, Brooklyn, N. Y.
Bureau of Municipal Research, Dayton, Ohio
Bureau of Municipal Research, New York City
Camp Fire Girls of America, New York City
Certified Milk and Baby Hygiene Committee, California Association of Collegiate Alumnae, San Francisco, Cal.
Charity Organization Society, Grand Rapids, Michigan
Child Federation, Philadelphia, Pa.
Child Welfare Association, New Orleans, La.
Child Welfare Committee of the Red Cross, Burlington, Iowa
Childrens' Aid Association, Indianapolis, Ind.
Childrens' Aid Society, Brooklyn, N. Y.
Childrens' Aid Society of Pennsylvania, Philadelphia

Childrens' Free Dispensary and Hospital Association, South Bend, Indiana
 Christian Service League of America, Wichita, Kansas
 Clinic for Infant Feeding of the D. A. Blodgett Home, Grand Rapids, Michigan
 Committee on Infant Social Service of the Womens' Municipal League, Boston, Massachusetts
 Connecticut Childrens' Aid Society, Hartford, Conn.
 Council, Milk and Ice Fund, Baltimore, Md.
 Day Nursery and Free Kindergarten Association, Cleveland, Ohio
 Department of Home Economics, N. Y. State College of Agriculture, Ithaca, N. Y.
 Diet Kitchen of the Oranges, Orange, N. J.
 Houston Settlement Association, Houston, Texas
 Infant Aid Association, Manchester, N. H.
 Infant Mortality Association, Birmingham, Ala.
 Infant Welfare Association, New Haven, Conn.
 Infant Welfare Committee, Syracuse, N. Y.
 Infant Welfare Department, Duluth Consistory Scottish Rite Masons, Duluth, Minn.
 Infant Welfare Society of Chicago, Ill.
 Infant Welfare Society of Minneapolis, Minn.
 Infant Welfare Station, La Salle, Illinois (Emma Matthieson Chancellor Memorial)
 Ladies' Literary Club of Salt Lake City, Utah
 Maryland Association for Study and Prevention of Infant Mortality (Babies' Milk Fund Association) Baltimore, Md.
 Maryland Society for the Prevention of Blindness, Baltimore, Md.
 Massachusetts Babies' Hospital, Boston, Mass.
 Massachusetts Milk Consumers' Association, Boston, Mass.
 Maverick Dispensary, Boston, Mass.
 Metropolitan Life Insurance Company, Industrial Department, New York City
 Milk and Baby Hygiene Association, Boston, Mass.
 Milwaukee Maternity Hospital and Free Dispensary Association, Milwaukee, Wis.
 Mothers' Aid of the Chicago Lying-In Hospital and Dispensary, Chicago, Ill.
 New Orleans Pure Milk Society, New Orleans, La.
 New York Diet Kitchen Association, New York City
 New York Milk Committee, New York City
 Public Library, Providence, R. I.
 Race Betterment Conference, Battle Creek, Michigan
 St. Louis Children's Hospital, St. Louis, Mo.
 St. Louis Pure Milk Commission, St. Louis, Mo.
 St. Margaret's House and Hospital, Albany, N. Y.
 Society for Helping Destitute Mothers and Infants, Boston, Mass.
 Sub-Committee on Mothers and Infants, New York State Charities Aid Association, New York City
 Utah Congress of Mothers, Salt Lake City
 Woman's Club, Chicago, Illinois
 Woman's Club, Decatur, Illinois
 Alumnae Association Battle Creek Sanitarium Training School for Nurses, Battle Creek, Michigan
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 Columbus (Ohio) District Nursing Association
 Farrand Training School Alumnae Association, Detroit, Michigan
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 Maryland State Association of Graduate Nurses
 Missouri State Nurses' Association
 National League of Nursing Education
 Nebraska State Association of Graduate Nurses
 New York State Nurses' Association
 Ohio State Association of Graduate Nurses
 Providence District Nursing Association, Providence, R. I.
 Visiting Nurse Association, Cincinnati, Ohio
 Visiting Nurse Association, Cleveland, Ohio
 Visiting Nurse Association, Detroit, Michigan
 Visiting Nurse Association, Elizabeth, N. J.
 Visiting Nurse Association, Eau Claire, Wisconsin
 Visiting Nurse Association, Milwaukee, Wisconsin
 Visiting Nurse Association, Waterbury, Conn.
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Goodrich, Dr. Charles A.	5 Haynes St., Hartford
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District of Columbia

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Columbia and Children's Alumnae Association (Affil.)	1337 K St., N. W., Washington
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Woodward, Dr. Wm. C.....	1766 Lanier Place, Washington

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State Board of Health (Affil.).....Jacksonville

Georgia

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Georgia State Association of Grad- uate Nurses (Affil.).....	Augusta
Rhodes, Dr. C. A.....	Atlanta

Illinois

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Alexander, Dr. W. G.....	1604 Chicago Ave., Evanston
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Brockett, Miss Myrn.....	818 Ewing St., Chicago
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* Deceased

Farwell, Mrs. Fanny D.....	Lake Forest
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Rew, Mrs. Irwin.....	1128 Ridge Ave., Evanston
Rosenwald, Mr. Julius.....	% Sears, Roebuck & Co, Chicago
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Scott, Mrs. Robert L.....	404 Lake St., Evanston
Shaw, Mrs. Howard Van Doren.....	Lake Forest
Teter, Mr. Lucius.....	5637 Woodlawn Ave., Chicago
Towne, Mrs. John D.....	1004 Greenwood Blvd., Evanston
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Webster, Dr. George W., President....	State Board of Health, Chicago
Woman's Club.....	410 S. Michigan Ave., Chicago
Woman's Club of Decatur.....	1033 N. Union St., Decatur
Wynekoop, Dr. A. Lindsay.....	406 W. Monroe St., Chicago
Young, Dr. George B.....	Commissioner of Health, Chicago
Zimmerman, Mr. W. C.....	Steinway Building, Chicago

Indiana

Children's Aid Association (Affil.)....	62-63 Baldwin Block, Indianapolis
Children's Dispensary and Hospital Association (Affil.).....	1031 W. Division St., South Bend
Mumford, Dr. E. B.....	504 Newton-Claypool Bldg., Indianapolis
Powell, Dr. Nettie B.....	Marion
Rappaport, Mr. Leo M.....	822 Law Building, Indianapolis
Wiggam, Mr. A. E.....	North Vernon

Iowa

Child Welfare Committee of the Red Cross (Affil.).....	502½ Jefferson St., Burlington
McIlvain, Mrs. M. P.....	1604 Dill St., Burlington
Sherbon, Dr. Florence Brown.....	Colfax

Kansas

Christian Service League of America (Affil.)	113 N. Lawrence Ave., Wichita
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Day, Miss Edna D.....	Department of Home Economics, Uni- versity of Kansas, Lawrence
Hosford, Mr. George Lewis.....	113 N. Lawrence Ave., Wichita

Kentucky

Babies' Milk Fund Association (Affil.)	215 E. Walnut St., Louisville
Barbour, Dr. Philip F.	Louisville
Belknap, Mrs. Morris A.	1322 Fourth Ave., Louisville
Butler, Miss Harriet L.	W. C. T. U. Settlement School, Hindman, Knott Co.
Myer, Dr. Samuel Percival	216 W. Chestnut St., Louisville
Shaver, Miss Elisabeth	215 E. Walnut St., Louisville
Smith, Mrs. Letchworth	Ann Acres, Mocking Bird Valley, R. F. D. No 1, Louisville
Tuley, Dr. Henry Enos	111 W. Kentucky St., Louisville

Louisiana

Butterworth, Dr. W. W.	Tulane University, New Orleans
Child Welfare Association (Affil.)	419 Gravier St., New Orleans
DeBuys, Dr. L. R.	1776 State St., New Orleans
Denegre, Mrs. George	Prytania and Eighth Sts., New Orleans
Hart, Mr. W. O.	134 Carondelet St., New Orleans
Herold, Mrs. S. L.	% Thigpen & Herold, First National Bank Building, New Orleans
New Orleans Pure Milk Society (Affil.)	1206 Maison Blanche Bldg., New Orleans

Maine

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Everett, Dr. Harold J.	727 Congress St., Portland
Gerrish, Dr. Y. H.	Portland
Webster, Dr. F. F.	Portland
Young, Dr. A. G., Secretary	State Board of Health, Augusta

Maryland

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Athey, Mrs. Caleb N.	100 S. Patterson Park Ave., Baltimore
Baby Welfare Section of Civic Club (Affil.)	Cumberland
Baltimore Association of Jewish Women (Affil.)	2355 Eutaw Place, Baltimore
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Belt, Mrs. W. H. G.	613 Reservoir St., Baltimore
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Bloodgood, Mrs. Joseph C.	904 N. Charles St., Baltimore
Bonaparte, Mr. Charles J.	216 St. Paul St., Baltimore
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Bowdoin, Mrs. W. G.	1106 N. Charles St., Baltimore
Buck, Mrs. R. B.	1228 St. Paul St., Baltimore
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Council, Milk and Ice Fund (Affil.)	Baltimore
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Dobbin, Mrs. Thomas M.	1308 Bolton St., Baltimore
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Ellicott, Mrs. Charles	Melvale
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Etchberger, Miss M. Frances	3602 Park Heights Ave., Baltimore
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France, Mrs. J. C.	219 W. Lanvale St., Baltimore
French, Miss Anna M.	219½ E. North Ave., Baltimore
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Fulton, Dr. John S., Secretary	State Department of Health, Baltimore
Garrett, Mr. Robert	Garrett Building, Baltimore
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Gibbs, Mrs. Rufus M.	1214 N. Charles St., Baltimore
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Health Department (Affil.).....	Baltimore
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Maryland Society for the Prevention of Blindness (Affil.).....	904 N. Charles St., Baltimore
Maryland State Association of Grad- uate Nurses (Affil.).....	1211 Cathedral St., Baltimore
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 Bowditch, Dr. Henry I.....416 Marlboro St., Boston
 Brackett, Mr. Jeffrey R.....41 Marlboro St., Boston
 Cabot, Dr. Richard C.....190 Marlboro St., Boston
 Carstens, Mr. C. C.....43 Mt. Vernon St., Boston
 Codman, Mrs. E. A.....227 Beacon St., Boston
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 Curry, Dr. Edmund L.....299 Hanover St., Fall River
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 Davis, Dr. Wm. H.....23 Beaumont St., Dorchester
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 Marshall, Mr. James.....Fall River
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 Mason, Mrs. Charles E.....Readville
 Massachusetts Babies' Hospital (Affil.).....43 Hawkins St., Boston
 Massachusetts Milk Consumers' Asso-
 ciation (Affil.).....49 Beacon St., Boston
 Maverick Dispensary (Affil.).....18 Chelsea St., East Boston
 Maynard, Mr. Harlan J.....200 Summer St., Boston
 Milk and Baby Hygiene Association
 (Affil.).....26 Bennet St., Boston
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 Putnam, Mrs. Wm. Lowell.....49 Beacon St., Boston
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 Sanford, Miss Kate I.....Taunton
 Sherwood, Miss Margaret P.....Wellesley College, Wellesley
 Shackford, Miss Martha H.....Wellesley College, Wellesley
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 and Infants (Affil.).....91 Mt. Vernon St., Boston
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Rowland, Dr. R. S.....	512 Washington Arcade, Detroit
Sinclair, Miss Helen.....	The Upper Peninsula Hospital for the Insane, Newberry
Smith, Dr. Richard R.....	Metz Building, Grand Rapids
Stevens, Mr. Henry Glover.....	615 Stevens Building, Detroit
Sutherland, Miss Anna, Supt.....	Blodgett Home for Children, Grand Rapids
Visiting Nurse Association (Affil.)....	924 Brush St., Detroit

Minnesota

Adair, Dr. Fred. L.....	Donaldson Building, Minneapolis
Barber, Mrs. Harry.....	2015 Pleasant Ave., South Minneapolis
Bracken, Dr. H. M., Secretary.....	State Board of Health, Capitol Building, St. Paul
Chesley, Dr. A. J., Director.....	Division of Epidemiology, State Board of Health, Minneapolis
Christison, Dr. J. T.....	Lowry Building, St. Paul
Crosby, Miss Caroline M.....	1616 Washington Ave., N., Minneapolis
Doerr, Mrs. George V.....	2611 Euclid Ave., Minneapolis
Douglas, Mrs. George P.....	2424 Park Ave., Minneapolis
Hoag, Dr. Ernest B.....	442 Summit Ave., St. Paul
Huenekens Dr. E. J.....	1037 Andrus Building, Minneapolis
Infant Welfare Department, Duluth	
Scottish Rite Masons (Affil.).....	Masonic Temple, Duluth
Infant Welfare Society of Minneapolis (Affil.)	820 Donaldson Building, Minneapolis
Ireys, Mrs. Charles G.....	401 Groveland Ave., Minneapolis
Knoblauch, Mrs. Florence W.....	1717 James Ave., S. Minneapolis
Lowry, Mrs. Horace.....	2 Groveland Terrace, Minneapolis
Mabey, Miss Nelly E.....	% Minneapolis Tribune, Minneapolis
Ramsey, Dr. Walter R.....	Lowry Annex, St. Paul
Rowe Dr. Olin Wallace.....	Fidelity Building, Duluth
Ross, Mrs. Charles Frederic.....	4741 Fremont Ave., S., Minneapolis
Schultz, Dr. Frederic W.....	820 Donaldson Building, Minneapolis
Sedgwick, Dr. J. P.....	New Syndicate Building, Minneapolis
Shevlin, Mrs. Thomas L.....	2205 Park Ave., Minneapolis
Sommers, Mrs. H. S.....	956 Portland Ave., St. Paul
Walker, Mrs. Archie Dean.....	419 Groveland Ave., Minneapolis
Williams, Mrs. Charles.....	2215 Pillsbury Ave., Minneapolis
Woodworth, Dr. Elizabeth A.....	3201 Clinton Ave., Minneapolis

Mississippi

Foster, Dr. R. Heath.Citizens' National Bank Bldg., Meridian
Watkins, Dr. F. L.Jackson

Missouri

Bleyer, Dr. A. S.516 Delmar Building, St. Louis
Brady, Dr. Jules M.1367 Union Ave., St. Louis
Darling, Miss Lottie A.611 N. Jefferson St., St. Louis
DeLamater, Dr. Hasbrouck, Assistant
Health Commissioner.Kansas City
Greene, Mrs. Charles W.814 Virginia Ave., Columbia
Halbert, Mr. L. A.Water Works Building, Kansas City
Missouri State Nurses' Association
(Affil.)5896 Delmar Blvd., St. Louis
Moore, Miss Elizabeth.3125 Lafayette Ave., St. Louis
Mosher, Dr. George Clark.605 Bryant Building, Kansas City
Neff, Dr. Frank C.90 Rialto Building, Kansas City
St. Louis Children's Hospital (Affil.)6 Westmoreland Place, St. Louis
St. Louis Pure Milk Commission (Affil.)1726 N. 13th St., St. Louis
Saunders, Dr. Edward W.1601 S. Grand Ave., St. Louis
Schorer, Dr. Edwin H.1010 Rialto Building, Kansas City
Stanley, Miss Louise.1215 Hudson Ave., Columbia
Tuttle, Dr. George M.4917 Maryland Ave., St. Louis
Veeder, Dr. Borden S.1806 Locust St., St. Louis
Volker, Mr. Wm.303 W. 8th St., Kansas City
Wilhelm, Dr. F. E.719 Gloyd Building, Kansas City
Zahorsky, Dr. John.1460 S. Grand Ave., St. Louis

Montana

Dean, Dr. Maria M.Helena

Nebraska

Lynch, Dr. Delia A.1002 W. O. W. Building, Omaha
McClanahan, Dr. H. M.468 Brandeis Building, Omaha
Nebraska State Association of Graduate Nurses (Affil.)Omaha

New Hampshire

Bennett, Dr. H. W. N.Manchester
Infant Aid Association (Affil.)Manchester
Streeter, Mrs. Frank S.234 N. Main St., Concord
The Berlin Mills Company's District
Nurse (Affil.)Berlin

New Jersey

Alexander, Mrs. A.Castle Point, Hoboken
Babies' Hospital (Affil.)437 High St., Newark
Babies' Hospital Milk Dispensary
(Affil.)437 High St., Newark
Bain, Miss.% Board of Health, Montclair
Bumsted, Dr. C. V. R.235 Grafton Ave., Newark
Coit, Dr. Henry L.277 Mt. Prospect Ave., Newark
Colgate, Mrs. Sidney M.363 Center St., Orange
Dennis, Dr. L.49 Ridge St., Orange
Diet Kitchen of the Oranges (Affil.)224 Essex Ave., Orange
Folsom, Miss Eleanor.Llewellyn Park, Orange
Francisco, Mr. Stephen, President. . . .Fairfield Dairy Co., Montclair
Harvey, Dr. Thomas W., Jr.463 Main St., Orange
Hoffman, Mr. Frederick L.Prudential Insurance Co., Newark
Hogan, Mr. Edward P.7 Second St., Weehawken
Howell, Mrs. J. W.211 Ballantine Parkway, Newark
Levy, Dr. Julius.191 Littleton Ave., Newark
MacNutt, Dr. J. Scott.227 Main St., Orange
Marvel, Dr. Philip.1616 Pacific Ave., Atlantic City

Moore, Mrs. Paul.....	78 Madison Ave., Morristown
Musselman, Miss Nellie S.....	105 S. Little Rock Ave., Ventnor
Nicholson, Mrs. Wm. H., Jr.....	327 S. Second St., Millville
Pinneo, Dr. Frank W.....	199 Garside St., Newark
Roebbling, Mrs. Karl G.....	211 W. State St., Trenton
Stern, Dr. Arthur.....	224 E. Jersey St., Elizabeth
Stewart, Dr. W. Blair.....	Cor. North Carolina and Pacific Aves., Atlantic City
Synnott, Dr. J. Martin.....	34 S. Fullerton Ave., Montclair
Van Winkle, Mrs. Abram.....	35 Lincoln Park, Newark
Visiting Nurse Association (Affil.)....	122 Magnolia Ave., Elizabeth

New York

Armstrong, Dr. Donald B....	105 E. 22nd St., New York City
Babbitt, Miss Ellen C.....	New York City
Babies' Dairy Association (Affil.)..	8 W. 49th St., New York City
Babies' Hospital (Affil.).....	135 E. 55th St., New York City
Babies' Milk Dispensary of Buffalo (Affil.).....	181 Franklin St., Buffalo
Baby Welfare Committee of Utica (Affil.).....	240 Genesee St., Utica
Baker, Dr. S. Josephine, Chief....	Division of Child Hygiene, Department of Health, New York City
Benson, Dr. Reuel A.....	8 W. 49th St., New York City
Biggs, Dr. Herman M.....	113 W. 57th St., New York City
Bock, Dr. Franklin Wm.....	133 Clinton Ave., S., Rochester
Brewster, Mr. George S.....	51 Wall St., New York City
Brooklyn Bureau of Charities District Nursing Committee (Affil.).....	80 Schermerhorn St., Brooklyn
Brooklyn Children's Aid Society (Affil.)..	72 Schermerhorn St., Brooklyn
Brown, Dr. W. M.....	272 Alexander St., Rochester
Bruere, Mr. Robert W.....	206½ W. 13th St., New York City
Bureau of Health (Affil.).....	Rochester
Bureau of Municipal Research (Affil.)..	261 Broadway, New York City
Button, Dr. Lucius L.....	265 Alexander St., Rochester
Calvert, Mrs. John B.....	201 W. 57th St., New York City
Camp Fire Girls of America (Affil.)....	118 E. 28th St., New York City
Clark, Miss Mary Vida.....	105 E. 22nd St., New York City
Clarke, Dr. T. Wood.....	240 Genesee St., Utica
Committee on Prevention of Blindness of the New York Association for the Blind (Affil.).....	105 E. 22nd St., New York City
Courtney, Bishop F.....	Madison Ave. and 75th St., New York
Darlington, Dr. Thomas.....	30 Church St., New York City
Department of Home Economics N. Y. State College of Agriculture (Affil.)..	Ithaca
Domser, Dr. Benjamin M.....	Cor. Pond and Lodi Sts., Syracuse
Dunham, Mrs. Edward K.....	35 E. 68th St., New York City
Erlanger, Mr. A.....	65 Worth St., New York City
Faust, Dr. Louis.....	19 Jay St., Schenectady
Faust, Dr. Wm. P.....	22 Jay St., Schenectady
Flagler, Mrs. Harry H.....	32 Park Ave., New York City
Folks, Mr. Homer.....	105 E. 22nd St., New York City
Fox, Mr. Henry J.....	150 W. 86th St., New York City
Fox, Mr. Mortimer J., Jr.....	150 W. 86th St., New York City
Fox, Mr. Hugh F.....	New York City
Frankel, Dr. Lee K.....	1 Madison Ave., New York City
Freeman, Dr. Rowland G.....	211 W. 57th St., New York City
Froneczak, Dr. Francis E., Health Commissioner.....	Municipal Building, Buffalo
Frost, Dr. Conway A.....	8 Plant St., Utica
Goler, Dr. George W., Health Officer...	Rochester
Goodrich, Miss Annie W.....	N. Y. State Department of Education, Albany
Gulfof, Dr. Wm. H.....	Department of Health, New York City
Harkness, Mr. Edward L.....	26 Broadway, New York City
Hart, Dr. Hastings H.....	130 E. 22nd St., New York City
Hatch, Mr. Edward, Jr.....	%Lord & Taylor, New York City
Haynes, Dr. Royal Storrs.....	375 West End Ave., New York City
Hebrew Infant Asylum (1914) (Affil.)..	Kingsbridge Road, New York City
Heiman, Dr. Henry.....	30 W. 88th St., New York City
Hess, Dr. Alfred F.....	16 W. 86th St., New York City

Higgins, Mr. Charles M.....	101 9th Ave., Brooklyn
Hill, Mr. Nicholas S., Jr.....	100 William St., New York City
Hilton, Mrs. George Porter.....	240 State St., Albany
Holden, Mrs. Edwin B.....	323 Riverside Drive, New York City
Holt, Dr. L. Emmett.....	14 W. 55th Street, New York City
Homer, Madame Louise.....	48 E. 78th St., New York City
Hoopess, Mr. Maurice.....	Glens Falls
Infant Welfare Committee of Associated Churches and Charities (Affil.)..	508 East Genesee St., Syracuse
Ives, Mrs. Henrietta.....	Bellevue and Allied Hospitals Social Service Department, New York City
Jacobi, Dr. Abraham.....	19 E. 47th St., New York City
Johnson, Mrs. Burges.....	Port Washington, Nassau Co.
Kellogg, Mrs. F. Leonard.....	118 E. 70th St., New York City
Kerley, Dr. Charles G.....	132 W. 81st St., New York City
Kosmak, Dr. George.....	307 Second Ave., New York City
Le Fetra, Dr. Linneus E.....	113 E. 61st St., New York City
McKechnie, Miss Mary W.....	420 W. 118th St., New York City
Macy, Dr. Mary Sutton.....	101 W. 80th St., New York City
Main, Mr. William.....	100 Broadway, New York City
Mason, Miss Mary R.....	105 E. 22nd St., New York City
Metropolitan Life Insurance Co. Industrial Department (Affil.).....	New York City
Mills, Mr. Wm. Wirt.....	249 Manor Road, West New Brighton
Mosher, Mr. H. T.....	216 Alexander St., Rochester
New York Diet Kitchen Association (Affil.).....	1 W. 34th St., New York City
New York Milk Committee (Affil.).....	105 E. 22nd St., New York City
New York State Nurses' Association (Affil.).....	419 W. 144th St., New York City
North, Dr. Charles E.....	30 Church St., New York City
Nutting, Miss M. Adelaide.....	Teachers' College, Columbia University, New York City
Olcott, Mr. Dudley.....	Albany
Olcott, Mrs. E. E.....	38 W. 39th St., New York City
Page, Dr. Agnes E.....	359 State St., Albany
Palmer, Dr. Joseph C.....	505 E. Fayette St., Syracuse
Parsons, Miss Marion G.....	510 W. 122nd St., New York City
Perkins, Miss Emily S.....	Riverdale-on-Hudson
Phelps, Mr. Edward Bunnell.....	500 W. 122nd Street, New York City
Pisek, Dr. Godfrey R.....	36 E. 62nd St., New York City
Potter, Dr. Philip S.....	742 S. Beach St., Syracuse
Pratt, Mrs. Charles M.....	Seamoor, Glen Cove, Long Island
Rambo, Dr. Wm. S.....	43 N. Plymouth Ave., Rochester
Robinson, Mrs. Theodore Douglas.....	Mahaque Farm, Mohawk, Herkimer Co.
Roosevelt, Mrs. Franklin H.....	49 E. 65th St., New York City
Rosenbaum, Mr. S. G.....	207 W. 24th St., New York City
Russell, Dr. N. G.....	469 Franklin St., Buffalo
Russell, Miss Martha M.....	447 W. 59th St., New York City
Sage, Mrs. Isabel W.....	Menando Road, Albany
Saint Margaret's House and Hospital (Affil.).....	Albany
Sands, Dr. Georgiana.....	Port Chester
Schiff, Mr. Jacob H.....	Kuhn, Loeb & Co., New York City
Schneider, Mr. Franz, Jr.....	31 Union Square, New York City
Schwarz, Dr. Herman.....	50 E. 91st St., New York City
Seward, Mr. W. R.....	218 Alexander St., Rochester
Shaw, Dr. Henry L. K.....	361 State St., Albany
Simon, Mrs. R. E.....	320 W. 87th St., New York City
Southworth, Dr. Thomas S.....	807 Madison Ave., New York City
Straus, Mr. Nathan.....	27 W. 72nd St., New York City
Strauss, Mr. Frederick.....	% J. V. W. Seligman & Co., New York City
Sub-Committee on Assisting and Providing Situations for Mothers and Infants of the New York State Charities Aid Association (Affil.)....	105 E. 22nd St., New York City
Tailler, Mrs. T. Suffern.....	21 W. 51st St., New York City
The American Nurses' Association (Affil.).....	419 W. 144th St., New York City
Thacher, Mrs. Archibald.....	49 E. 51st St., New York City
The National League of Nursing Education (Affil.).....	420 W. 118th St., New York City

Tiemann, Miss Edith Winifred.....	67 Midwood St., Brooklyn
vander Bogert, Dr. Frank.....	111 Union St., Schenectady
Van Ingen, Dr. Philip.....	125 E. 71st St., New York City
Wakeman, Mr. Arthur E.....	72 Schermerhorn St., Brooklyn
Weston, Miss Alice B.....	105 E. 22nd St., New York City
White, Mr. Thomas R., Jr.....	100 Broadway, New York City
Wile, Dr. Ira S.....	230 W. 97th St., New York City
Willcox, Prof. Walter F.....	Cornell University, Ithaca
Winslow, Prof. C.-E. A.....	College of the City of New York
Winters, Dr. Joseph E.....	25 W. 37th St., New York City
Wood, Dr. Thomas D.....	Columbia University, New York City
Wright, Mr. J. H.....	55 Plymouth Ave., Rochester
Wynkoop, Dr. E. J.....	401 James St., Syracuse

North Carolina

Paquin, Dr. Paul.....	Asheville
State Board of Health (Affil.).....	Raleigh
Weil, Mrs. Mina.....	Goldsboro, Wayne Co.

North Dakota

McCannell, Dr. A. J.....	1145 S. Main St., Minot
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Ohio

Abbott, Mr. Gardner T.....	1215 Williamson Building, Cleveland
Alcott, Mrs. C. B.....	Stillman Road, Cleveland
Auer, Mrs. C. W.....	1309 W. 112th St., Cleveland
Babies' Dispensary and Hospital of Cleveland (Affil.).....	2500 E. 35th St., Cleveland
Baehr, Mr. Herman.....	8309 Detroit St., Cleveland
Baldwin, Mr. and Mrs. Arthur D.....	Lake Shore Boulevard, Cleveland
Bill, Dr. Arthur.....	2082 E. 96th St., Cleveland
Blair, Dr. B. H.....	Lebanon
Brokaw, Dr. Wm. L.....	2102 E. 55th St., Cleveland
Brown, Miss Elizabeth L.....	2727 Euclid Ave., Cleveland
Brown, Mr. Alexander C.....	1974 E. 71st St., Cleveland
Bruner, Dr. Wm. E.....	13380 Euclid Ave., Cleveland
Bureau of Municipal Research (Affil.).....	602 Schwind Building, Dayton
Calfee, Mr. R. M.....	1608 Williamson Building, Cleveland
Cameron, Mr. L. J.....	Central National Bank, Cleveland
Chisholm, Mrs. Wm.....	3618 Euclid Ave., Cleveland
Clark, Mrs. Harold F.....	1899 E. 82nd St., Cleveland
Cleveland Day Nursery and Free Kin- dergarten Association (Affil.).....	1851 E. 82nd St., Cleveland
Conrad, Mr. A. J.....	10127 South Boulevard, Cleveland
Crile, Dr. George.....	6203 Euclid Ave., Cleveland
Cummer, Miss R. H.....	1950 E. 79th St., Cleveland
Cushing, Mrs. Melanie H.....	4712 Euclid Ave., Cleveland
Cushing, Mrs. Wm.....	2908 Euclid Ave., Cleveland
Cutler, Prof. J. E.....	11311 Hessler Road, Cleveland
Day, Mrs. E. L.....	Akron
Devereux, Mrs. M. F.....	2525 Euclid Ave., Cleveland
Engel, Mrs. Austa W.....	1720 E. 116th Place, Cleveland
Feiss, Mrs. Paul L.....	11452 Euclid Ave., Cleveland
Flory, Mrs. W. L.....	9906 Lamont Ave., Cleveland
Ford, Dr. C. E., Secretary.....	Board of Health, Cleveland
Furrer, Dr. Arnold F.....	1110 Euclid Ave., Cleveland
Galt, Mrs. Wm.....	Glendale, Cincinnati
Garfield, Mr. and Mrs. Abram.....	Lake Shore Boulevard, Cleveland
Garfield, Mrs. James R.....	3328 Euclid Ave., Cleveland
Gerstenberger, Dr. H. J.....	2500 E. 35th St., Cleveland
Gitchell, Miss Katherine.....	Akron
Glass, Dr. G. L.....	13491 Euclid Ave., Cleveland
Goodhue, Dr. George.....	Dayton
Grandin, Mr. and Mrs. G. W.....	Magnolia Drive, Cleveland
Greene, Mr. and Mrs. Edward B.....	10831 Magnolia Drive, Cleveland
Hamann, Dr. C. A.....	416 Osborn Building, Cleveland
Hanna, Mrs. Howard M., Jr.....	Station H, Cleveland
Hanna, Mr. and Mrs. H. M.....	2417 Prospect Ave., Cleveland
Hanna, Mrs. Mark, 2nd.....	Station H, Cleveland
Hart, Mr. Louis F.....	1875 E. 89th St., Cleveland
Harvey, Mr. M. C.....	215 Cuyahoga Building, Cleveland

Harvey, Mr. P. W.	4608 Euclid Ave., Cleveland
Hencke, Mr. J. W.	2216 E. 80th St., Cleveland
Herrick, Mrs. F. C.	11318 Euclid Ave., Cleveland
Hogen, Mr. F. G.	1823 E. 97th St., Cleveland
Holden, Mrs. L. Deane	Station H, Cleveland
Hoover, Dr. C. F.	702 Rose Building, Cleveland
Hopkins, Mr. Arthur T.	13921 Euclid Ave., Cleveland
Hord, Mrs. John	Cleveland
Howell, Dr. J. Morton	Reibold Building, Dayton
Instructive District Nursing Association (Affil.)	276 E. State St., Columbus
Ireland, Mrs. Robert L.	Lake Shore Boulevard, Cleveland
Johnson, Miss M. L.	1654 E. 86th St., Cleveland
Ladd, Dr. L. W.	211 Osborn Building, Cleveland
Lamb, Dr. Frank H.	940 E. McMillan St., Cincinnati
Leete, Miss Harriet H.	2500 E. 35th St., Cleveland
Light, Dr. A. L.	1000-1001 U. B. Building, Dayton
Lowman, Dr. John H.	1807 Prospect Ave., S. E., Cleveland
McMillin, Mrs. S. S.	Station H, Cleveland
Marks, Mr. Martin A.	5932 Broadway, Cleveland
Mather Mrs. A. S.	2605 Euclid Ave., Cleveland
Mather, Mr. Samuel	Western Reserve Building, Cleveland
Meckes, Mr. Gus	1327 W. 9th St., Cleveland
Metcalf, Dr. Maynard M.	Oberlin College, Oberlin
Miller, Mrs. Elizabeth C. T.	3738 Euclid Ave., Cleveland
Miller, Dr. T. Clarke	Massillon
Morgan, Miss Edith S.	2500 E. 35th St., Cleveland
Morgan, Mrs. C. J.	2142 Euclid Ave., Cleveland
Morgenroth, Dr. S.	202 Everett Building, Akron
Morse, Mrs. J. C.	Station H, Cleveland
Newell, Mrs. J. E.	Mentor
Ohio State Association of Graduate Nurses (Affil.)	Massillon
Otis, Mr. Charles A.	Cuyahoga Building, Cleveland
Otis, Mrs. Harrison G.	9616 Euclid Ave., Cleveland
Patterson, Dr. C. L.	Dayton
Perkins, Mr. Douglas	1404 W. 3rd St., Cleveland
Peskind, Dr. A.	2414 E. 55th St., Cleveland
Phillips, Dr. John	10509 Euclid Ave., Cleveland
Pope, Dr. Carlyle	1950 E. 81st St., Cleveland
Prescott, Mrs. O. W.	1813 E. 65th St., Cleveland
Rachford, Dr. B. K.	323 Broadway, Cincinnati
Rees, Mrs. William	3624 Euclid Ave., Cleveland
Rigelhaupt, Dr. Wm.	2346 E. 43rd St., Cleveland
Rosenfeld, Miss Irma L.	1706 Magnolia Drive, Cleveland
Ruh, Dr. H. O.	2500 E. 35th St., Cleveland
Saeger, Mr. Wilford C.	Hippodrome Building, Cleveland
Samuel, Miss Mary A., R. N.	The Lakeside Hospital, Cleveland
Schmidlapp, Mr. J. G.	Cincinnati
Scott, Dr. N. Stone	603 Citizens' Building, Cleveland
Selby, Dr. C. D.	234-235 Spitzer Building, Toledo
Sellenings, Dr. O. H.	816 Oak St., Columbus
Shackleton, Dr. W. E.	503 Osborn Building, Cleveland
Sherwin, Miss Belle	3328 Euclid Ave., Cleveland
Sheridan, Mrs. R. B.	1893 E. 82nd St., Cleveland
Sherwin, Mrs. John	Overlook Road, Euclid Heights, Cleveland
Sherwin, Miss Prudence	Willoughby
Silver, Mrs. M. T.	1725 Magnolia Drive, Cleveland
Skeel, Dr. A. J.	1834 E. 65th St., Cleveland
Stevenson, Dr. Mark D.	165 E. Market St., Akron
Stokes, Mrs. Ada S.	220 W. 7th Ave., Cincinnati
Strong, Mrs. Ann Gilchrist, Director	Cincinnati Kindergarten Training School, Linton St., Cincinnati
Sullivan, Miss Selma	7218 Euclid Ave., Cleveland
Taylor, Dr. Ralph B.	1275 N. High St., Columbus
Thomas, Dr. J. J.	1110 Euclid Ave., Cleveland
Titlow, Dr. Bennetta D.	351 Limestone St., Springfield
Todd, Dr. Harvey D.	38 Brown Building, Akron
Tuttle, Miss Jennie L.	276 E. State St., Columbus
Tyler, Mrs. W. S.	1415 Euclid Ave., Cleveland
Visiting Nurse Association (Affil.)	220 W. Seventh Ave., Cincinnati
Visiting Nurse Association (Affil.)	612 St. Clair Ave., Cleveland

Wade, Mr. and Mrs. Jephtha H.....	3903 Euclid Ave., Cleveland
Waite, Dr. F. C.....	1778 Crawford Road, Cleveland
Wason, Mrs. Charles W.....	9209 Euclid Ave., Cleveland
White, Mrs. W. T.....	Station H, Cleveland
Whitlock, Mr. and Mrs. E. H.....	Lake Ave., Cleveland
Williams, Mr. Edward M.....	10916 Magnolia Drive, Cleveland
Witter, Dr. C. Orville.....	1838 W. 57th St., Cleveland
Wolfenstein, Dr. S.....	1725 E. 115th St., Cleveland
Woodford, Mr. W. R.....	2692 Berkshire Road, Cleveland
Wright, Mr. Howell.....	501 St. Clair Ave., Cleveland
Wyckoff, Dr. C. W.....	2500 E. 35th St., Cleveland

Oregon

Bilderback, Dr. J. B.....	903 Corbett Building, Portland
Calvin, Mrs. Henrietta W.....	Corvallis, Oregon Agricultural College
Cardwell, Dr. Mae H.....	601, The Dekum, Portland
Hall, Dr. Robert G.....	907 Journal Building, Portland
Moore, Mr. H. H.....	Portland

Pennsylvania

Anders, Dr. J. M.....	1605 Walnut St., Philadelphia
Atlee, Mrs. John L.....	129 E. Orange St., Lancaster
Batt, Dr. Wilmer R., Resistrar of Vital Statistics.....	Department of Health, Harrisburg
Bausch, Dr. F. R.....	109 N. Second St., Allentown
Bok, Mrs. Edward.....	Merion
Brunner, Dr. Henry G.....	542 N. 11th St., Philadelphia
Burns, Dr. H. B.....	Nixon Building, Pittsburgh
Burr, Dr. Charles W.....	1918 Spruce St., Philadelphia
Carpenter, Dr. Howard Childs.....	1805 Spruce St., Philadelphia
Cheston, Dr. Radcliffe.....	Chestnut Hill, Philadelphia
The Child Federation (Affil.).....	Real Estate Trust Building, Philadelphia
Coles, Dr. Stricker.....	2103 Walnut St., Philadelphia
Children's Aid Society of Pennsylv- ania (Affil.).....	421 S. 15th St., Philadelphia
Craig, Dr. Frank A.....	732 Pine St., Philadelphia
Davis, Mr. H. B.....	6433 Monitor St., Pittsburgh
Dixon, Dr. Samuel G.....	State Commssioner of Health, Harris- burg
Eaton, Dr. Percival J.....	715 N. Highland Ave., E. E., Pittsburgh
Edwards, Dr. J. F.....	431 Sixth Ave., Pittsburgh
Edwards, Dr. Ogden M., Jr.....	5607 Fifth Ave., Pittsburgh
Elliott, Dr. John D.....	1421 Spruce St., Philadelphia
Elterich, Dr. Theodore J.....	724 Highland Building, Pittsburgh
Fife, Dr. Charles A.....	2033 Locust St., Philadelphia
Flick, Dr. Lawrence F.....	738 Pine St., Philadelphia
Fox, Miss Rena P., R. N.....	Babies' Hospital of Philadelphia, Bryn Mawr and Parkside Aves., Wynnfield
Gucker, Mr. F. T.....	Witherspoon Building, Philadelphia
Hamill, Dr. S. McC.....	1822 Spruce St., Philadelphia
Hill, Dr. Howard Kennedy.....	339 S. 18th St., Philadelphia
Jenkins, Mrs. Charles F.....	150 W. Washington Lane, Germantown
Jenks, Dr. Horace H.....	Wayne
Johnson, Mr. Roswell H.....	University of Pittsburgh, Pittsburgh
Johnson, Dr. W. N.....	8460 Germantown Ave., Philadelphia
Hammond, Dr. Frank C.....	3338 N. Broad St., Philadelphia
Jones, Dr. Eleanor C.....	1531 N. 15th St., Philadelphia
Jump, Dr. Henry D.....	4634 Chester Ave., Philadelphia
Keen, Miss Dora.....	1729 Chestnut St., Philadelphia
Lea, Mrs. Langdon.....	Bala
Leconte, Dr. Robert G.....	1530 Locust St., Philadelphia
Levy, Rabbi J. Leonard.....	"Seven Gables," Schenley Park, Pitts- burgh
Lewis, Dr. Bertha.....	Box No. 23, Bryn Mawr
Litchfield, Dr. Lawrence.....	5431 Fifth Ave., Pittsburgh
Madeira, Miss Edith.....	320 Walnut St., Philadelphia
Martin, Dr. Edward.....	1506 Locust St., Philadelphia
Mellon, Mr. A. W.....	5052 Forbes St., Pittsburgh
Mercur, Dr. Wm. H.....	Fifth Ave and St. James St., Pittsburgh
Metcalf, Miss C. Margaret.....	205 W. 9th St., Erie
Miller, Dr. Harold A.....	Pittsburgh Life Building, Pittsburgh

Miner, Dr. Charles H.....	115 S. Franklin St., Wilkes-Barre
Monges, Dr. Willis L.....	Jefferson Medical College, Philadelphia
Mubrenan, Dr. John P.....	1228 S. Broad St., Philadelphia
Neff, Dr. Joseph S., Director.....	Department of Public Health and Charities, Philadelphia
Newlin, Dr. Arthur.....	1804 Pine St., Philadelphia
Newmayer, Dr. S. W.....	1834 Girard Ave., Philadelphia
Peck, Dr. Elizabeth L.....	4113 Walnut St., Philadelphia
Perkins, Miss Charlotte.....	1029 Spruce St., Philadelphia
Piersol, Dr. George Morris.....	1927 Chestnut St., Philadelphia
Posey, Dr. Louis P.....	1807 Walnut St., Philadelphia
Preston, Mrs. Frances Metcalf.....	205 W. 9th St., Erie
Price, Dr. Harry T.....	Westinghouse Building, Pittsburgh
Reckefus, Dr. Charles H., Jr.....	506 N. 6th St., Philadelphia
Robinson, Mrs. Louis N.....	Swarthmore
Royer, Dr. B. Franklin.....	Department of Health, Harrisburg
Schamberg, Dr. Jay F.....	1922 Spruce St., Philadelphia
Simmons, Dr. Richard H.....	Shamokin
Sinclair, Dr. John F.....	4103 Walnut St., Philadelphia
Sprague, Dr. Frances R.....	Pembroke Road, Bryn Mawr
Stahl, Dr. B. Franklin.....	1727 Pine St., Philadelphia
Stahr, Dr. Charles P.....	17 E. Walnut St., Lancaster
Starr, Dr. Louis.....	1818 Rittenhouse Square, Philadelphia
Stotesbury, Mrs. Edward.....	1925 Walnut St., Philadelphia
Sykes, Dr. Henry.....	Philadelphia General Hospital, Phila.
Tallant, Dr. Alice Weid.....	1807 Spruce St., Philadelphia
Taylor, Dr. Marianna.....	St. Davids
Van Kirk, Miss Anne D.....	5414 Ellsworth Ave., Pittsburgh
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INDEX

- Abt, I. A., M. D., Teaching of Hygiene and its Relation to the Prevention of Infant Mortality, 91
 Discussion, 129
- Adams, Samuel S., M. D., Chairman, General Session, 320
- Address of the President, L. Emmett Holt, M. D., 24
- Address, Sunday Session, Wm. C. Woodward, M. D., 286
- Affiliated Societies, Reports of, 367
- Ahrens, Minnie H., Discussion, 71, 83
- Babbitt, Ellen C., The Foundling Asylum and the Unmarried Mother, 363
- Babies' Dispensary and Hospital, Cleveland, 412
- Babies' Dispensary Guild, Hamilton, Ontario, 368
- Babies' Hospital,
 —Boston, 382
 —Newark, N. J., 398
- Babies' Milk Fund Association
 —Baltimore, 378
 —Detroit, 391
 —Louisville, 376
- Baby Saving Activities, Discussion of Ideal Plan:
 Department of Health, C. E. Ford, M. D., 341
 Relation of Baby-Saving Activities to the Department of Health and to Each Other, S. Josephine Baker, M. D., 351
 Ideal Visiting Nursing, The, M. Adelaide Nutting, 353
 Place of the Maternity Hospital, The, J. Whitridge Williams, M. D., 355
 Place of the Hospital, The, L. Emmett Holt, M. D., 359
- Dispensary, Social Service Department, The, J. H. Mason Knox, Jr., 361
- Foundling Asylum and the Unmarried Mother, The, Ellen C. Babbitt, 363
- Part of the Church, The, John Van Schaick, D. D., 365
- Baby, The Claim of the, J. H. Mason Knox, Jr., M. D., 289
- Baker, S. Josephine, M. D., Relation of Baby-Saving Activities to the Department of Health and to Each Other, 351
 Discussion, 71, 96, 97, 203, 207, 239, 304, 311, 351
- Baltimore
 —Babies' Milk Fund Assn., 378
 —Council Milk and Ice Fund, 377
- Battle Creek Sanitarium Training School for Nurses, 390
- Bell, Miss, Associated Charities, 331
- Bennett, H. W., M. D., Discussion, 205
- Bibliography, 54, 126, 146, 150-156
- Binzel, Alma, Discussion, 257, 272
- Birmingham, Ala., Infant Welfare Society, 368
- Birth Registration, 48, 231, 296, 311, 313, 320
- Blind, Assn. for the, New York, 400
- Boston:
 Division of Child Hygiene, 187, 223, 226
 Department of Health, Prenatal and Postnatal Work, 223, 226
 Committee on Infant Social Service, Women's Municipal League, Boston, 187, 223
 Maverick Dispensary, 227, 385
 Milk and Baby Hygiene Association, 226, 235, 387
 Society for Helping Destitute Mothers and Infants, 389

- Boyd, T. Hunter, Discussion, 84
 Burlington, Ia., Child Welfare Com-
 mittee, 374
- Calvin, Mrs. Henrietta, Discussion,
 277
- Chancellor Memorial Milk Station,
 La Salle, 372
- Charity Organization Society, Grand
 Rapids, 392
- Chicago Infant Welfare Society, 371
 Lying-In Hospital and Dispen-
 sary, 372
- Child Federation of Philadelphia,
 415
- Child Hygiene
 Boston, Division of, 223, 226,
 387
 Newark, Dept. of, 244
 New York Dept. of Health,
 49, 59, 239, 351
- Child Welfare Committee, Burling-
 ton, Ia., Chapter of the Red
 Cross, 374
- Child Welfare Service, Providence
 District Nursing Assn., 417
- Children's Aid
 Assn. of Indianapolis, 373
 Society of Pennsylvania, 416
- Children's Clinic, Cincinnati, 413
- Children's Dispensary and Hospital
 Assn., South Bend, 374
- Children's Hospital, St. Louis, 396
- Christian Service League of Amer-
 ica, 375
- Cincinnati
 Children's Clinic, 413
 Visiting Nurse Assn., 413
- Claim of the Baby, The, J. H.
 Mason Knox, Jr., M. D., 289
- Clarke, T. Wood, M. D., Discussion,
 82, 97
 Midwifery Report, 238
- Clement, Fannie F., Infant Mortal-
 ity Nursing Problems in Rural
 Communities, 75
 Discussion, 68, 73, 80, 81
- Cleveland Babies' Dispensary and
 Hospital, 412
 Visiting Nurse Assn., 413
- Clinic for Infant Feeding, Grand
 Rapids, 392
- Coit, Henry L., M. D., Report on
 English Speaking Conference
 on Infant Mortality, 55
- Cole, Leon I., M. D., Discussion, 146
- Committee on Infant Social Service,
 Women's Municipal League,
 Boston, 187, 223
- Conferences and Congresses on In-
 fant Mortality, 42, 55
- Consultations for Nurslings (*See*
Also Baby Welfare Stations
and Infant Welfare Stations),
 44, 45, 46
- Continuation Schools of Home Mak-
 ing, Helen C. Putnam, M. D.,
 251
- Bride's Course, Vienna, 262
- Committee Report, 257
- Discussion:
 Jacobs, Emma Suter, 269
 Binzel, Alma, 272
 Calvin, Mrs. Henrietta, 277
 Lippitt, Louisa C., 278
 True, A. C., Ph. D., 278
 Hunt, Caroline L., 280
 Marlatt, Abby L., 282
- Cooley, T. B., M. D., Discussion, 128,
 131
- Council Milk and Ice Fund, Balti-
 more,
- Davenport, Chas. B., Ph. D., Results
 from Experimental Breeding
 Bearing upon the Problem of
 Infant Conservation, 134
- Detroit
 —Babies' Milk Fund Assn., 391
 —Visiting Nurse Assn., 391
- Diet Kitchen Assn., New York City,
 403
 —of the Oranges, 399
- District Nursing Assn., Providence,
 417
- District of Columbia, Baby Saving
 Activities in, Reports of:
 Department of Health, Arthur
 L. Murray, M. D., 320
- Instructive Visiting Nurse So-
 ciety, Isabel Strong, 326
- Woman's Clinic Auxiliary, Mrs.
 John Hays Hammond, 328
- Providence Hospital, G. Lloyd
 Magruder, M. D., 330

- Associated Charities, Miss Bell, 331
 Baby Hospital Camp, Louise Taylor-Jones, M. D., 334
 Woman's Welfare Department, National Civic Federation, Mrs. Archibald Hopkins, 335
 Washington Diet Kitchen Association, Mary Gwynn, 337
 Monday Evening Club, Chas. F. Nesbit, 339
 Central Milk Committee, W. J. French, M. D., 339
 Duluth Consistory Scottish Rite Masons Committee on Infant Welfare, 393
- Education of Parents in Practical Eugenics
 Mrs. John Hays Hammond, 135
 Evangeline Wilson Young, M. D., 160
 Discussion:
 Johnson, Roswell H., 164, 167
 Putnam, Mrs. Wm. Lowell, 165
 Hart, Hastings H., LL. D., 165, 167
 Putnam, Helen C., M. D., 167
 Wilbur, Cressy L., M. D., 167
 Elizabeth, N. J., Visiting Nurse Assn., 397
 Emmons, A. B., 2nd., M. D., Obstetric Care of the Maverick Dispensary, 227
 English Speaking Conference on Infant Mortality, Report on, Henry L. Coit, M. D., 55
 Resolutions, etc., 21, 57
 Etchberger, M. Frances, Private Duty Nurses and the Prevention of Infant Mortality, 69
 Eugenics, Education of Parents in Practical, 135, 160, 164, 167
 Eugenics, Session on, 133
 Discussion, 133, 137, 138, 146, 164
 Executive Secretary, Report of, 19
 Exhibit, Travelling, 19
- Financial Statement, 23
 Flannagan, Roy K., M. D., Discussion, 138
- Flies and Infant Mortality, 116
 Ford, C. E., M. D., Department of Health, 341
 Foundling Asylum, The, and the Unmarried Mother, Ellen C. Bab-bitt, 363
 Foundlings, Earliest Provision for, 28
 Washington Home for, 331
 French, W. J., M. D., Central Milk Committee, 339
 Fulton, Gavin, M. D., Discussion, 204
- General Session, Reports on Baby Saving Activities in the District of Columbia, 320
 Goler, George W., M. D., Midwifery Report, 241
 Goodwin, Mrs. E. R., Discussion, 79
 Grand Rapids Charity Organization Society, 392
 Clinic for Infant Feeding, 392
 Greene, Henry Copeley, Report of Massachusetts Commission for the Blind, 229
 Gwynn, Mary, Washington Diet Kitchen Association, 337
- Hamilton, Ontario, Babies' Dispensary Guild, 368
 Hammond, Mrs. John Hays, Education of Parents in Practical Eugenics, 135
 Woman's Clinic Auxiliary, 328
 Hart, Hastings H., LL. D., Discussion, 165, 167
 Health Board of Richmond, 418
 Health Bureau, Rochester, N. Y., 408
 Health Department, Boston, 223
 Health, State Board of, N. C., 411
 Heat and Infant Mortality, Bibliography, 126
 Heat and Infant Mortality, J. W. Schereschewsky, M. D., 99
 Discussion:
 Cooley, T. B., M. D., 128, 131
 Talbot, Fritz B., M. D., 129
 Abt, I. A., M. D., 129
 Shaw, H. L. K., M. D., 130
 Schwarz, Herman, M. D., 130
 Woodward, Wm. C., M. D., 131

- Levy, Julius, M. D., 131
 Schereschewsky, J. W., M. D., 132
- Hebrew Infant Asylum, New York City, 404
- Helmholz, Henry F., M. D., Chairman, Session on Pediatrics, 85
- Heredity, Tuberculosis and, 149
- Holt, L. Emmett, M. D., Infant Mortality, Ancient and Modern, Address, 24
 The Place of the Hospital, 359
 Discussion, 89
- Home Making, Continuation Schools of, 251
- Hopkins, Mrs. Archibald, Woman's Welfare Department, National Civic Federation, 335
- Hospital Care, Maternity, for the Woman of Moderate Means, 208
- Housing and Infant Mortality (*See J. W. Schereschewsky*)
- Houston, Texas, Settlement Assn., 418
- Hunt, Caroline L., Discussion, 280
- Huntington, James Lincoln, M. D., Report on Obstetrics, 218
- Hygiene, Teaching of, and the Prevention of Infant Mortality, I. A. Abt, M. D., 91
 Discussion:
- Knox, J. H. Mason, Jr., M. D., 95
- Putnam, Helen C., M. D., 96
- Baker, S. Josephine, M. D., 96, 97
- Marlatt, Abby L., 97
- Clarke, T. Wood, M. D., 97
- Leete, Harriet E., 98
- Ideal Obstetric Out-Patient Clinic, The, F. S. Newell, M. D., 191
 Discussion:
 Williams, J. Whitridge, M. D., 200
 Baker, S. Josephine, M. D., 203, 207
 Fulton, Gavin, M. D., 204
 Bennett, H. W., M. D., 205
 Pinneo, F. W., M. D., 206
 Schwarz, Henry, M. D., 207
- Illegitimate Infants, Care of:
 Germany, 47
 Leipzig, 47
- Indianapolis Children's Aid Assn., 373
- Infant Aid Assn., Manchester, N. H., 397
- Infant Conservation, Results from Experimental Breeding Bearing upon the Problem of, 134
- Infant Feeding, 86, 89, 90
- Infant Feeding Conference, St. Louis, 395
- Infant Life, Sacrifice of, Among Ancients, 26
- Infant Mortality
 —and Baby-Saving Activities, 341, 365
 —and Factory Employment of Women, 34
 —and Flies, 116
 —and Housing, 109, 111, 125
 —and Infant Feeding, 86, 89, 90
 —and Milk Depots, 44
 —and Milk Production, 37
 —and Stale or Germ-laden Milk, 112, 125, 128, 131, 132
 —and the Private Duty Nurse, 69
- Bibliography, 54
- Conferences and Congresses on, 42, 55
- Economic Aspects, 26, 43, 44
- Education of Parents in Practical Eugenics a Factor in the Prevention of, 135, 160
- Effects of Urbanization of Population on, 34
- Essentials in Campaign against, 52
- Heat and, 99
 —in Europe, in the Middle of the 19th Century, 35
 —in Institutions, 31
 —in the 17th and 18th Centuries, 30
- Methods Followed in the Reduction of, in New York City, 49
(See also reports of Affiliated Societies, 367)
- Nursing Problems in Rural Communities, 75

- Prenatal Care, 174, 182, 184, 187, 378, 385 (*See also Reports of Affiliated Societies*)
- Teaching of Hygiene and its Relation to, 91
- Infant Mortality, Ancient and Modern: An Historical Sketch, Address by the President, L. Emmett Holt, M. D., 24
- Infant Mortality Nursing Problems in Rural Communities, Fannie F. Clement, 75
- Discussion:
- Goodwin, Mrs. E. R., 79
- Clement, Fannie F., 80, 81
- Putnam, Mrs. Wm. Lowell, 81, 82, 83
- Nevins, Georgia M., 81
- Lent, M. E., 81, 82, 83
- Clarke, T. Wood, M. D., 82
- Ahrens, Minnie H., 83
- Boyd, T. Hunter, 84
- Infant Mortality, Prevention of, Public School Education for, 251
- Infant Welfare and the Community, Mary Sherwood, M. D., 283
- Infant Welfare Associations: (*See Affiliated Societies*)
- Infant Welfare Committee, Syracuse, 408
- Infant Welfare Nurses, Standards for, 62
- Jacobs, Emma Suter, Discussion, 257, 269
- Johnson, Roswell H., Discussion, 164, 167
- Jordan, H. E., Ph. D., Chairman, Session on Eugenics, 133
- Discussion, 138
- Kane, C. J., M. D., Midwifery Report, 242
- Kerr, Anna W., Discussion, 67
- Knipp, Gertrude B., Report of Executive Secretary, 19
- Knox, J. H. Mason, Jr., M. D., The Claim of the Baby, 289
- The Dispensary, Social Service Department, 361
- Discussion, 95
- Kober, George M., M. D., Acting Chairman, Session on Vital and Social Statistics, 293
- Kosmak, George W., M. D., Maternity Hospital Care for the Woman of Moderate Means, 208
- Midwifery Report, 237
- La Forge, Zoe, Standards for Infant Welfare Nurses, 62
- La Salle, Chancellor Memorial Milk Station, 372
- Lathrop, Julia C., Chairman, Session on Vital and Social Statistics, 293
- Leete, Harriet L., Chairman, Nursing and Social Work, 59, 67, 68, 72, 74
- Discussion, 98
- Legislation Concerning Employment of Women in Factories, 41
- Legislation for Protection of Infancy, 40
- Lent, M. E., Discussion, 81, 82, 83
- Levy, Julius, M. D., Discussion, 89, 131
- Midwifery Report, 244
- Lichtenstein, Frances F., Report of Committee on Nursing and Social Work, 59
- Lippitt, Louisa C., Discussion, 278
- Louisville Babies' Milk Fund Assn., 376
- Lying-In Hospital and Dispensary, Chicago, 372
- McLanahan, Austin, Report of Treasurer, 23
- Magruder, G. Lloyd, M. D., Providence Hospital, 330
- Manchester, N. H., Infant Aid Association, 397
- Marlatt, Abby L., Discussion and Report, 97, 257, 282
- Marshall, Harry T., M. D., Tuberculosis and Heredity, 149

- Maryland Association for Study and Prevention of Infant Mortality, 378
- Massachusetts -
- Babies' Hospital, 382
 - Commission for the Blind, Work of, for the Prevention of Ophthalmia Neonatorum, Henry Copley Greene, 229
 - Milk Consumers' Association, 383
- Maternity Hospital Care for the Woman of Moderate Means, George W. Kosmak, M. D., 208
- Maternity Hospital, Place of, In the Ideal Plan, J. Whitridge Williams, M. D., 355
- Maverick Dispensary, Boston, 385
- Membership, 22, 420
- Metropolitan Life Insurance Co., Industrial Dept., New York City, —
- Midwifery Reports:
- Providence, R. I., 236
 - Utica, 238
 - New York City, 239
 - Syracuse, 240
 - Schenectady, 240
 - Rochester, 241
 - Paterson, N. J., 242
 - Orange, N. J., 242
 - Newark, N. J., 244
 - Washington, D. C., 246
 - Virginia, West Virginia and North Carolina, 246
- Midwives, 174, 179, 180, 183, 202, 203, 204, 205, 206, 222, 229, 232-250
- Midwives in New England:
- Maine, 233
 - Vermont, 234
 - Manchester, 234
 - Boston, 235
 - Fall River, 236
 - Providence, 236
 - New Haven, 237
- Milk and Baby Hygiene Assn., Boston, 387
- Milk Committee, New York, 405
- Milk Consumers' Association, Massachusetts, 383
- Milk Depots:
- (See *Affiliated Societies*)
- England, 44, 46, 48
- Milk, Effects of Stale or Germ-laden, 112, 125, 128, 131, 132
- Minneapolis Infant Welfare Society, 394
- Murray, Arthur L., M. D., Department of Health, 320
- National Puericulture, Antonio Vidal, M. D., 169
- Nesbit, Charles F., Monday Evening Club, 339
- Nevins, Georgia M., Discussion, 72, 73, 81
- Newark, N. J., Babies' Hospital, 398
- Newell, F. S., M. D., The Ideal Obstetric Out-Patient Clinic, 191
- New England Sub-Committee on Obstetrics, 218
- New Haven Infant Welfare Assn., 370
- New York Assn. for the Blind, 400
- New York City:
- Babies' Welfare Association, 51, 351
 - Diet Kitchen Assn., 403
 - Division of Child Hygiene, 49, 59, 239
 - Hebrew Infant Asylum, 404
 - Metropolitan Life Insurance Co., Industrial Dept.
 - Milk Committee, 50
- Nichols, Henry J., M. D., The Relation of Experimental Syphilis to Eugenics, 139
- Norris, John L., M. D., Report on Obstetrics, 246
- North Carolina State Board of Health, 411
- Nurses' Training School, Battle Creek, 390
- Nursing and Social Work, Session on, 59
- Nutting, M. Adelaide, Discussion, 66, 67, 73, 74
- Nutting, Adelaide M., The Ideal Visiting Nurse, 353
- Obstetric Care of the Maverick Dispensary, Boston, A. B. Emmons, 2nd, M. D., 227
- Obstetric Out-Patient Clinic, The Ideal, 191
- Obstetrical Education in the Medical Schools, Status of, 218
- Bowdoin, 218

- Boston University, 219
 Tufts College, 220
 Harvard, 220
 Yale, 221
 Obstetrical Standards in Actual Practice, 222
 Obstetrics, Session on, 173
 Ophthalmia Neonatorum, Work of Massachusetts Commission for the Blind, for Prevention of, 229
 Orange, N. J., Diet Kitchen, 399
- Paquin, Paul, M. D., Discussion, 156
 Pediatrics, Session on, 85
 Pennsylvania, Children's Aid Society of, 416
 Philadelphia, Child Federation of, 415
 Children's Aid Society, 416
 Pinneo, F. W., M. D., Discussion, 148, 206
 Pisek, Godfrey R., M. D., Discussion, 89
 Porter, Katherine, M. D., Midwifery Report, 242
 Potter, P. S., M. D., Midwifery Report, 240
 Prenatal and Postnatal Work, Department of Health, Boston, 225
 Prenatal Care, Henry Schwarz, M. D., 174
 Discussion:
 Van Ingen, Philip, M. D., 182
 West, Mrs. Max, 184
 Putnam, Mrs. Wm. Lowell, 187
 (See also Reports of Affiliated Societies, 367)
 Private Duty Nurses and the Prevention of Infant Mortality, M. Frances Etchberger, 69
 Discussion:
 Ahrens, Minnie H., 71
 Baker, S. Josephine, M. D., 71
 Nevins, Georgia M., 72, 73
 Nutting, M. Adelaide, 73, 74
 Clement, Fannie F., 73
 Welsh, Lillian, M. D., 73
 Progress in Vital Statistics and Birth Registration, Cressy L. Wilbur, M. D., 313
 Providence District Nursing Assn., 417
- Public School Education for Prevention of Infant Mortality, 251
 Puericulture, National, 169
 Putnam, Helen C., M. D., Chairman, Session on Continuation Schools of Home Making, 251
 Discussion, 68, 96, 167
 Putnam, Mrs. Wm. Lowell, Discussion, 68, 81, 82, 83, 165, 187
- Relation of Experimental Syphilis to Eugenics, Bibliography, 146
 Relation of Experimental Syphilis to Eugenics, Discussion:
 Cole, Leon, I., M. D., 146
 Pinneo, F. W., M. D., 148
 Relation of Experimental Syphilis to Eugenics, The, Henry J. Nichols, M. D., 139
 Report of Committee on Nursing and Social Work, F. F. Lichtenstein, 59
 Reports on Obstetrics:
 New England Sub-Committee, James Lincoln Huntington, M. D., 218
 New York and New Jersey Sub-Committee, George W. Kosmak, M. D., 237
 Sub-Committee for the South-Eastern States and the District of Columbia, John L. Norris, M. D., 246
 Resolutions adopted at Washington Meeting, American Association for Study and Prevention of Infant Mortality, 17
 Adopted by English-Speaking Conference on Infant Mortality, 57
 Results from Experimental Breeding Bearing upon the Problem of Infant Conservation, Chas. B. Davenport, Ph. D., 134
 Discussion:
 Flannagan, Roy K., M. D., 138
 Jordan, H. E., Ph. D., 138
 Richmond Board of Health, 418
 Rochester, N. Y., Health Bureau, 408
 Rural Communities, Infant Mortality Nursing Problems in. 75

- St. Louis Children's Hospital, 396
— Infant Feeding Conference, 395
- Schereschewsky, J. W., M. D., Heat and Infant Mortality, 99
Discussion, 132
- Schwarz, Henry, M. D., Prenatal Care, 174
Discussion, 207
- Schwarz, Herman, M. D., Simple Milk Dilution Feeding, 86
Discussion, 130
- Schools for Midwives, 170, 184, 204, 207, 239
- Session on
Continuation Schools, 251
Eugenics, 133
Nursing and Social Work, 59
Obstetrics, 173
Pediatrics, 85
Vital and Social Statistics, 293
Local Activities, 320
Sunday, 283
- Shaw, H. L. K., M. D., Discussion, 130
- Sherwood, Mary, M. D., Chairman, Session on Obstetrics, 173
Infant Welfare and the Community, 283
- Simple Milk Dilution Feeding, Herman Schwarz, M. D., 86
Discussion:
Pisek, Godfrey, R., M. D., 89
Holt, L. Emmett, M. D., 89
Levy, Julius, M. D., 89
Helmholz, Henry F., M. D., 90
Trundle, A. S., 90
- Society for Helping Destitute Mothers and Infants, Boston, 389
- South Bend Children's Dispensary and Hospital Assn., 374
- Standards for Infant Welfare Nurses, Zoe La Forge (See also F. F. Lichtenstein), 62
Discussion:
Nutting, M. Adelaide, 66, 67
Kerr, Anna W., 67
Putnam, Helen C., M. D., 68
Putnam, Mrs. Wm. Lowell, 68
Clement, Fannie F., 68
- Stone, Ellen A., M. D., Midwifery Report, 236
- Strong, Isabel, Instructive Visiting Nurse Society, Washington, 236
- Sunday Session, 283
- Syphilis, Experimental, Relation of, to Eugenics, 139
- Syracuse Infant Welfare Committee, 408
- Talbot, Fritz B., M. D., Discussion, 129
- Taylor-Jones, Louise, M. D., Baby Hospital Camp, 334
- Teaching of Hygiene and its Relation to the Prevention of Infant Mortality, I. A. Abt, M. D., 91
- Treasurer's Report, 23
- True, A. C., Ph. D., Discussion, 278
- Trundle, A. S., Discussion, 90
- Tuberculosis and Heredity, Harry T. Marshall, M. D., 149
Bibliography, 150, 151, 152, 153, 154, 156
Discussion, 156
- Use of Vital Statistics for Conservation of Infant Life, The, Wm. C. Woodward, M. D., 294
- Utica Baby Welfare Committee, 410
- Van Der Bogert, Frank, M. D., Midwifery Report, 240
- Vandervort, Mrs., 257
- Van Ingen, Philip M. D., Discussion, 182, 310
- Van Schaick, John, D. D., The Part of the Church, 365
- Van Trump, Miss, Discussion, 316
- Vidal, Antonio, M.D., National Puericulture, 169, Discussion, 315
- Visiting Nurse Association:
Cincinnati, 413
Cleveland, 413
Detroit, 391
Elizabeth, N. J., 397
Providence, 417

- Vital Statistics :
—Beginning of, 30
—Session on, 293
—Use of, for Conserving Infant Life, 294
—and Birth Registration, 313
- Vital and Social Statistics, Discussion :
Putnam, Helen C., M. D., 303
Woodward, W. C., M. D., 303, 317, 318
Baker, S. Josephine, M. D., 304, 311
Holt, L. Emmett, M. D., 307
Fulton, John S., M. D., 308
Ford, C. E., M. D., 310
Van Ingen, Philip, M. D., 310
Meriam, Lewis, 311
Putnam, Mrs. Wm. Lowell, 312
Vidal, Antonio, M. D., 315
Van Trump, Miss, 316
- Welsh, Lillian, M. D., 73
West, Mrs. Max, Discussion, 184
Wilbur, Cressy L., M. D., Progress in Vital Statistics and Birth Registration, 313
Discussion, 167
Williams, J. Whitridge, M. D., The Place of the Maternity Hospital, 355
Discussion, 200
Woodward, Wm. C., Use of Vital Statistics for the Conservation of Infant Life, 294
Address, 286
Discussion, 131, 217, 318
- Young, Evangeline Wilson, M. D., Education of Parents in Practical Eugenics, 160

